LAND COURT OF QUEENSLAND

CITATION:	*Bowen Basin Coal Pty Ltd v Queensland Conservation Council Inc & Ors* [2026] QLC 18
PARTIES:	**Bowen Basin Coal Pty Ltd** (applicant) v **Queensland Conservation Council Inc** (non-active objector) and **Environmental Advocacy in Central Queensland Inc** (non-active objector) and **Department of Environment, Tourism, Science and Innovation** (statutory party)
FILE NOs:	EPA066-25 (EPML00659513)
PROCEEDING:	Hearing of objection to amendment of environmental authority
DELIVERED ON:	15 September 2026
DELIVERED AT:	Brisbane
HEARD ON:	17 August 2026
HEARD AT:	Brisbane
PRESIDENT:	PG Stilgoe OAM
ORDER/S:	**1. I recommend to the administering authority responsible for the *Environmental Protection Act 1994* that EPML 00659513 be approved subject to the environmental authority attached.** **2. I direct the Registrar of the Land Court to provide a copy of these reasons and access to the Land Court e-trial site to the administering authority under the *Environmental Protection Act 1994*.** **3. The parties may make written submissions about costs within 21 days.**

CATCHWORDS: ENERGY AND RESOURCES – MINERALS – MINING FOR MINERALS – GENERALLY – Queensland – where there are objections to a draft amended environmental authority (EA) – where the amendment seeks to extend the productive life of an open cut coal mine – where an Environmental Impact Statement was provided – where the objectors did not elect to be active in proceedings – where evidence is led by the applicant only – where the objections concern inadequacies in greenhouse gas emissions, terrestrial ecology, offsets and rehabilitation, surface water, groundwater, aquatic ecology, economic viability, social and economic impacts and human rights – where the Standard Criteria are to be assessed – where the Paris Agreement is considered – whether the Court should recommend to the administering authority of the *Environmental Protection Act 1994* that the application for an amended environmental authority be approved

HUMAN RIGHTS – HUMAN RIGHTS LEGISLATION – *Human Rights Act 2019* – where the Court is acting as a public entity in an administrative capacity – where the Court must give proper consideration to human rights relevant to its recommendation – where the potential human rights engaged are the right to recognition and equality before the law, property, privacy, life and protection of children and cultural rights of Aboriginal peoples and Torres Strait Islander peoples – whether there is a sufficient causal link between the Project and the potential human rights – whether there is a limitation on human rights – whether a limitation on human rights is justified

Environmental Protection Act 1994 s 191
Human Rights Act 2019 s 13, s 15, s 16, s 24, s 25, s 26, s 28

New Acland Coal Pty Ltd v Smith (2018) 230 LGERA 88; [2018] QSC 88, cited
Waratah Coal Pty Ltd v Youth Verdict Ltd & Ors (No 6) [2022] QLC 21, applied

APPEARANCES: SC Holt KC and JJ Underwood (instructed by Minter Ellison) for the applicant
RJ Anderson and GB Kiss (instructed by the Department of the Environment, Tourism, Science and Innovation) for the statutory party

[1] Bowen Basin Coal Pty Ltd (**BBC**) wants to extend the life of its Lake Vermont open cut coal mine, situated near Dysart in the Bowen Basin. The mine produces high-quality hard coking coal, pulverised coal injection (**PCI**) and some thermal coal.

[2] The current Environmental Authority (**EA**) allows mining of up to 12 million tonnes of run-of-mine (**ROM**) coal per year. In fact, production is around 9 million tonnes per annum (**Mtpa**) ROM. BBC predicts that output will decline from 2028 as the existing resource is exhausted.

[3] BBC wants to start long wall underground coal mining to the north of the existing mine. The proposal also includes a small open cut pit where the coal seam is a steeply dipping resource that is not amenable to long wall mining. The new mine(s) will use the infrastructure of the existing mine for processing and loading (**the Project**).

[4] The Project would maintain a similar output to the existing mine and extend the productive life of the mine for approximately 20 years.

[5] BBC produced an Environmental Impact Statement (**EIS**). The Project has been assessed and approved under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). It has also been assessed by the Department of the Environment, Tourism, Science and Innovation (**DETSI**). DETSI determined to approve the Project subject to a set of conditions (**draft EA**).

[6] BBC and DETSI have agreed on a final draft EA (**final draft EA**), which was filed on 17 August 2026 and is an annexure to this decision.

[7] Two submitters objected to the draft EA triggering a referral to this Court. Their broad grounds of objection are:

(a) the greenhouse gas emissions of the proposal;

(b) the impact on terrestrial ecology and whether the proposed offsets and rehabilitation are adequate;

(c) the impact on surface water, groundwater and aquatic ecology;

(d) the economic viability of the proposal;

(e) the social and economic impacts of the proposal; and

(f) whether the proposal meets the tests under the *Human Rights Act 2019.*

[8] This proceeding is not a consideration of the factors under the *Mineral Resources Act 1989* to determine whether a mining lease should be granted. The Court must make a recommendation to the administering authority considering the matters in s 191 of the *Environmental Protection Act 1994* (**EP Act**). Section 191 sets out the documents to which the Court must refer, the regulatory requirements and the Standard Criteria.

[9] The Standard Criteria are to be assessed considering the subject matter of the proceeding, not the effect of the Project on the environment generally[1].

[10] The objectors referenced the precautionary principle. Contrary to popular belief, that principle does not mean that decision-makers should proceed cautiously in all respects. As this Court has previously articulated, the precautionary principle applies where there is a new or untested activity, or where the outcome of an activity is in doubt. None of those considerations applies here.

[11] As the Court is a public entity for the purposes of this proceeding, it must also consider the *Human Rights Act 2019* (**HR Act**)[2].

[12] For the reasons that follow, I am satisfied that the final draft EA adequately deals with the issues presented by the Project and, therefore, that it should be approved.

Greenhouse gas emissions and climate change

[13] The objectors say that the proposal will result in additional greenhouse gas (**GHG**) emissions which will contribute to climate change. They say that these emissions are incompatible with the Paris Agreement and Queensland's emission targets. They say that the GHG emissions for the proposal have been underestimated or inadequately assessed.

[14] BBC submitted a number of reports in response to the GHG objection.

Coal quality

[15] Nick Roberts is a coal technologist with extensive experience in coal quality assessment.

[16] He has verified and accepted BBC's projected coal production in years where sufficient ROM coal feed is available and where the product strategy yields an appropriate product split. He is less certain that production will be consistent in the later years of the Project.

[17] Mr Roberts says that each of BBC's coal categories fall within the range of potential specifications. He considers it feasible that the Project will produce 5.5Mtpa of hard coking coal, 2.5Mtpa of PCI coal and 1 Mtpa of thermal coal per annum. Those figures largely align with BBC's current production mix from the existing mine and show that the Project will produce mostly metallurgical coal.

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1 *New Acland Coal Pty Ltd v Smith* (2018) 230 LGERA 88; [2018] QSC 88 at [65], [72].

2 *Human Rights Act 2019* s 58.

Steel making

[18] Shaun Browne specialises in the application of an engineering-based approach to mineral economics. He has over 30 years' experience in consulting, industry and market forecasting in the resources industry. He has provided a comprehensive report detailing the history of steel making, the methods of steel making and the role that coal plays in that process.

[19] He has given an opinion about the likelihood and feasibility of new steel making technologies that do not rely on coal. He has also provided information on the future of the steel market and the GHG ramifications of each steel-making process.

[20] Coal contributes around 75% of the fuel mix in current steel production methods.

[21] Steel production is a series of processes that gradually removes the oxygen from iron ore, resulting in simple metallic iron. As a first step, coke burnt in the furnace produces carbon monoxide which chemically reduces iron oxide.

[22] Secondly, coke provides thermal heat to melt iron ore.

[23] Thirdly, coke can withstand the very high temperatures required to produce metallic iron. The very high temperatures volatise impurities such as hydrogen, oxygen, nitrogen and sulphur. Coke also structurally supports the blend of iron ore, coke and flux by forming a packed bed with the iron ore. The bed allows gas to move upward while liquid iron flows downward.

[24] Mr Browne says that coke is the only substance that can perform these three functions. Coke is produced by heating coal at high temperatures in the absence of oxygen.

[25] Mr Browne states that the global steel industry produces around 1.9 billion tonnes of crude steel annually. Steel demand is highest in developing countries as they invest in infrastructure (i.e. transport networks, power and machinery). Demand for steel in mature economies is stable or slightly declining where the demand for steel is to replace infrastructure or to transition to renewable energies. He says that steel will account for 75% of total material requirements for energy transition. Mr Browne also notes that the recent geopolitical instability has increased the demand for steel for defensive purposes, particularly in arms manufacturing.

[26] Mr Browne sets out a number of alternative processes for steel-making, and their benefits and limitations. Although there are some promising technologies, which can

reduce GHG emissions, there are no large-scale processes that can replace the accepted method of production which requires access to high quality coking coal.

[27] Mr Browne has also detailed technologies for "green steel". He notes that the largest barrier to green steel occupying a greater share of the production market is cost.

[28] The capital cost of constructing a green steel plant is much higher than the cost of refurbishing an existing facility.

[29] The green energy needed to produce the required heat is rarely available and, when it is, very expensive. Many of the current projects labelled as "green" rely on a transition to green hydrogen, which may not occur during the life of the project, or the availability of green electricity, which is not readily or reliably available.

[30] The cost of producing steel through traditional processes is about $430/t. The cost of producing steel through a greener technology is estimated to be at least $500/t and possibly as high as $1000/t. Government policies, including cap and trade markets, will not overcome the price disincentive for green steel.

[31] Mr Browne thinks that the production of green steel will grow selectively and gradually. He takes the view that conventional steel production will remain the central pillar of supply over the next 30 years. For that reason, Mr Browne predicts that the demand for coking coal will remain stable over the next 30 years, although the source of demand may shift to those countries that do not have sufficient high grade coking coal, principally India and Indonesia.

[32] Coking coal must have a high carbon content, low ash and moderate volatile matter content. Mr Browne notes that coking coal from the Bowen Basin is highly regarded for its low ash and low sulphur content. He notes, too, that Australian producers have a substantial freight advantage when supplying into Southeast Asia.

Gas drainage proposal

[33] Miles Brown is a mining engineer who has worked on gas drainage design and management at 30 mines. He has created new technologies to reduce emissions from mines.

[34] Mr Brown was asked to evaluate the Project and prepare a detailed gas drainage design.

[35] The primary purpose of gas drainage is to protect mine workers and the mine itself from gas related hazards. Methane is explosive when present in concentrations between 5% and 15% and flammable at concentration greater than 15%. Gas drainage is, therefore, directed at reducing gas content to below the explosive thresholds.

[36] A secondary purpose of gas drainage is to maximise the capture of methane to reduce fugitive emissions.

[37] Mr Brown has designed a gas drainage system that reduces the surface disturbance and maximises the capture of fugitive methane. The design uses underground pipework from the longwall ends, which reduces the number of gas riser pads and the number of flare locations required.

[38] Under this design, Mr Brown estimates the post drainage capture efficiency at 90%, compared with the initial 60% assumed in the EIS. That efficiency is further enhanced through sealed goaf gas capture.

[39] As a consequence of the gas drainage plan, BBC is evaluating whether it can construct a gas-fired power station to fuel its operations.

[40] Each of the experts referred to below were asked to reconsider their opinions based on the gas drainage proposal. None thought that it would alter their substantive opinions as to the suitability of the Project. Some, however, suggested amendments to the draft EA. Those suggestions have been incorporated into the final draft EA.

Other considerations

[41] Australia's Paris Agreement commitments have been acknowledged through the *Climate Change Act 2022* (Cth), which legislates national reduction targets, and the *National Greenhouse and Energy Reporting (Safeguard Mechanism) Amendment (Production Variable Update) Rules 2023* (Cth). The Safeguard Mechanism applies to industrial facilities emitting more than 100,000t of carbon dioxide per year. The Mechanism sets limits on permissible emissions (**Safeguard baseline**). Emitters can offset their excess emissions by surrendering or buying Australian Carbon Credit Units (**ACCUs**).

[42] The existing mine and the Project are separate facilities under the Safeguard Mechanism. Both will emit more than 100,000t per annum. Both will have to keep their net emissions of Scopes 1 and 2 GHG emissions at or below the Safeguard

baseline, which will reduce over time. BBC has a framework in place to purchase ACCUs where necessary.

[43] The Clean Energy Regulator has issued an Emissions Intensity Determination. The DETSI analysis has considered the application of the GHG Guideline which states:

> Scope 3 emissions may be considered by the administering authority in a decision on an EA application. The administering authority must consider whether the project will result in one/or more environmental objectives being met and/or serious or material environmental harm occurring. In considering environmental harm, the administering authority will consider the likelihood of that harm and any control measures proposed to minimise the impacts. The EP Act identifies that environmental harm may be caused by an activity, whether the harm is a direct or indirect result of the activity. While Scope 3 emissions are considered as part of the overall application, Scope 3 emissions will not be managed through EA conditions. This is because the generation of Scope 3 emissions is outside the direct control of the operator.

[44] BBC has already prepared a Sustainability Policy. The draft EA requires a GHG abatement plan. Unlike previous conditions about abatement plans, BBC must:

(a) identify the reference point against which the ongoing reduction of emissions will be assessed;

(b) set interim and long-term reduction targets for the Project's Scope 1 and Scope 2 emissions, to apply throughout the life of the Project;

(c) set out an emission reduction program detailing the specific measures by which those targets will be achieved, each of which must be "specific, measurable, achievable, realistic, and time-bound";

(d) provide for the regular review of new technologies to identify further abatement opportunities;

(e) establish a program for monitoring emissions and auditing performance against the reduction targets; and

(f) provide for periodic public reporting of progress against those targets.

[45] The abatement plan must be reviewed every two years and compliance with the plan is a condition of the draft EA.

[46] This condition is a significant change from environmental authorities presented to the Court for other projects. It represents a more nuanced and measurable approach to an emitter's obligations to reduce GHG emissions.

[47] The cumulative Scope 1 and 2 emissions are 0.0088GtCO_2. On that basis, the GHG emissions are expected to contribute 0.000004°C to global warming.

[48] As to Scope 3 emissions, BBC says that those emissions will be counted, and presumably regulated, by the receiving country that will use the coal in steel production. BBC says that this reflects the architecture of the Paris Agreement which allocates national responsibility – accounting for those emissions that occur within its borders. It says, and I accept, that the Paris Agreement's accounting rules are designed to ensure that emissions are counted only once.

[49] BBC says that, even if I took scope 3 emissions into account, the Project's contribution to climate change would be no more than 0.00014°C rise in temperature.

[50] Finally, BBC says that refusing the Project would not reduce Scope 3 emissions; it will simply shift the source of supply.

Terrestrial ecology, offsets and rehabilitation

Terrestrial Ecology

[51] The Project involves disturbance of almost 850 ha. The objectors say that this level of disturbance will affect 15 regional ecosystems, four of which are listed as endangered and six of which are listed as "of concern". They say that the proposal will have some impact on 167 native fauna species, including the ornamental snake, greater glider, koala, echidna, squatter pigeon, white-throated needletail and the Australian painted snipe.

[52] Ecologist Brad Dreis provided a report on the proposal's potential effect on terrestrial ecology. He says that ecological assessments confirmed the presence of seven Matters of National Environmental Significance (**MNES**) consisting of two threatened ecological communities and five threatened fauna species. The five threatened species are the ornamental snake, greater glider, koala, squatter pigeon, and white-throated needletail. He noted that there were an additional three areas of State Matters of Environmental Significance (**SMES**). He also confirmed that there will be impacts to brigalow and poplar box vegetation. He did not consider the effects on brigalow, squatter pigeon, and white-throated needletail to be significant.

[53] He agrees that there will be significant impacts through the clearing of brigalow and poplar box. He agrees that there will be impacts on the habitat for the ornamental snake, koala and greater glider. He does not think that there will be a significant

impact on the habitat for the squatter pigeon, white-throated needletail and painted snipe.

[54] Mr Dreis also believes that the draft EA "is consistent with contemporary approvals of this nature" and adequately addresses BBC's obligation to manage ecological impacts.

[55] Mr Dreis does not agree that the Brigalow Belt bioregion represents the last refuges and corridors for koalas and greater gliders to survive. He says that most of the relevant habitat has been previously cleared and does not provide a habitat for either species. He notes that large areas of habitat will remain and be augmented by the offset areas.

[56] He does not agree that local populations of koala, greater glider and ornamental snake could be wiped out by the Project. He says the proposed impacts are relatively small compared to the large areas of habitat that will be retained.

[57] Relying on the report of Claire Stephenson, Mr Dreis notes that the maximum post-drawdown groundwater depth will be approximately 17.3m. He says that the relevant tree species, *Eucalyptus camaldulensis*, can access groundwater at depths of up to 22.6m without observable decline in condition. He does not think the predicted drawdown will affect the health of the species. Otherwise, Mr Dreis says that the habitat is not reliant on groundwater.

[58] Mr Dreis agrees that the cumulative impacts of a project should be considered. He says that quantifying cumulative impacts can be difficult, but he is satisfied that BBC has addressed the cumulative impacts based on publicly available information.

Offsets

[59] Mr Dreis agrees that the Project will require offsets. He has reviewed the proposed environmental offsets. He notes that the proposed offsets exceed the areas disturbed by the Project and significantly improve the habitat quality.

[60] The Objectors say that the offset strategy will fail to achieve biodiversity gain because it relies on existing habitat within the MLA and that not clearing this habitat does nothing to replace the lost habitat.

[61] Mr Dreis disagrees. He notes that BBC proposes to restore the condition of the habitat, which reduces the time lag between achieving a net biodiversity gain compared to creating or restoring habitat in areas with minimal existing vegetation. He also notes

that, because it is regrowth, the area may be lawfully cleared again in the future. By designating the area as an offset it will be protected from future clearing.

[62] Mr Dreis believes that the Offset Area Management Plan addresses the requirements of the EPBC Act. He suggested that the plan provides additional detail to demonstrate how individual criteria used to determine the overall habitat quality scores will be improved over 20 years. He also recommended an increase in the number of monitoring sites. These suggestions have been incorporated into the latest Offset Area Management Plan.

[63] He believes that the offsets and BBC's Offset Area Management Plan demonstrates that adequate and appropriate offsets have been proposed to compensate for the MNES impacts.

Rehabilitation

[64] Angus Ball is the sustainability manager for the Jellinbah Group, of which BBC is a part. He holds a Bachelor of Environmental Science (Natural Resources) and has over 20 years' experience in the mining industry.

[65] Mr Ball states that BBC has been progressively rehabilitating its existing mine, returning the land to its pre-existing use of grazing, since 2012. He states that of 27 rehabilitated areas on the existing mine, 26 are achieving an acceptable level of performance. He states that BBC has undertaken rehabilitation on approximately 535 ha.

[66] I have no reasons to doubt Mr Ball's evidence.

[67] The Progressive Rehabilitation and Closure Plan (**PRCP**) for the existing mine will be amended to include a requirement to rehabilitate the Project in a similar way to the existing mine.

Surface water, groundwater and aquatic ecology

Surface Water

[68] Greg Roads is a civil engineer with a history of providing specialist water management advice to the mining industry.

[69] Mr Roads says that there are no wetlands of high ecological significance in the Project area.

[70] There is one high ecological significance wetland downstream of the Project, but Mr Roads says the Project will have no impact on the surface hydrology of that wetland.

[71] There are several wetlands of general ecological significance in the Project area, either farms dams or a local gilgai[3]. There is only one general ecologically significant site that is not a dam but fed by local catchment flows and overflow. Mr Roads says that this site may receive more flows if the Project has areas of subsidence.

[72] The Objectors were concerned that there had been no assessment of the combined effect of the Project subsidence and the Saraji East[4] subsidence. They thought that, together, the two could amplify changes to drainage.

[73] Mr Roads did consider the cumulative effects of the two projects. He concluded that the impact would not be significantly different from the effects of the Project alone.

[74] He agreed with an earlier report that the cumulative impact of all projects on the Isaac River was relatively small.

[75] The Objectors were concerned that the Projects flood modelling did not consider climate modelling.

[76] Mr Roads points out that the 2023 surface water assessment report[5] did reference climate change and found that there will be no increased impact on aquatic systems due to climate change. The reports indicate that the likely effect of climate change will be drier conditions, so flooding is less likely. If the effect of climate change is to increase flooding, then the draft EA – which prevents release from the Project into the surrounding streams – would deal with that possibility.

[77] Mr Roads thought that the draft EA was appropriate, but he did recommend an expansion of Condition G25 to require the construction of all levees before operational works commenced. That change has been incorporated into the final draft EA.

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3 A natural micro-relief landform surface depression, formed by shrinking and swelling clay soils (vertosols) during alternating wet and dry seasons.

4 A mine operated by another company but adjacent to the Project.

5 WRM COM.042 at 74.

Groundwater

[78] Claire Stephenson has over 8 years' experience in groundwater consulting. She has managed complex groundwater projects and numerous groundwater assessments for mine operations.

[79] Groundwater levels in the Isaac River alluvium have been monitored by a neighbouring miner since 2020. BBC has been monitoring groundwater on its site for the same period.

[80] Ms Stephenson notes that the Project will interact with groundwater, through direct intersection, removal of groundwater at the open cut pit and through gas drainage. She says that longwall mining fractures the overlying rock and therefore it will change its hydraulic properties.

[81] Ms Stephenson says that there is shallow groundwater in the Quaternary Alluvium which traverses the Project area. The Quaternary Alluvium is recharged by rainfall and streamflow. Contributions from the deeper groundwater are unlikely as data shows that groundwater flows vertically down, not up. The shallow water table is fresh, unlike the deeper groundwater which is saline.

[82] Ms Stephenson predicts an average water budget reduction of 0.01ML/day, largely due to the increased leakage towards the deeper coal measures. She thinks this change is unlikely to be measurable compared to natural variability. She does not think there will be any significant changes to baseflow contributions to the creeks.

[83] The Objectors say that the lowering of aquifer levels may have an impact on groundwater dependent ecosystems. They say that drawdown and subsidence may affect the koala and greater glider habitat.

[84] Ms Stephenson says that the predicted drawdowns due to the Project are considered conservative. She defers to others as to whether the drawdowns will affect groundwater dependent ecosystems.

[85] The Objectors were concerned that groundwater drawdowns may adversely affect the wetlands. Ms Stephenson thinks it unlikely that the wetlands are reliant on groundwater.

[86] The Objectors were concerned that the Project will involve dewatering and likely affect groundwater levels. They were also concerned about the cumulative effects of the numerous mines in the area.

[87] Ms Stephenson notes that the groundwater impact assessment report considered the cumulative impacts from all approved and foreseeable mining in the region. The predicted drawdowns are considered conservative.

[88] Ms Stephenson suggested some refinement to the wording of the draft EA. Those suggestions have been incorporated into the final draft EA.

Aquatic Ecology

[89] Lauren Thorburn provided a report about the proposal's effect on aquatic ecology.

[90] She says that most of the waterways and wetlands in the Project area are ephemeral. The aquatic ecosystems support species that are common to the region, adapted to the ephemeral conditions and are not listed as rare or threatened. She says there is very little aquatic flora in the creek systems and the stygofauna communities are of low ecological value.

[91] She notes that the draft EA requires comprehensive and ongoing monitoring and management of potential aquatic ecological impacts and that conditions are appropriate from an aquatic ecology perspective. The draft EA does not contemplate any extra mine-affected water release points, so there will be no change in the release of mine-affected water. The conditions include a receiving environment monitoring program.

[92] No aquatic groundwater dependent ecosystems have been identified within the proposal area. The groundwater drawdown of the deeper aquifers will not impact the perched alluvial aquifers.

[93] Ms Thorburn acknowledges that there will be subsidence from the proposal and that the subsidence will change surface water and ponding. However, she does not expect the changes to result in any unacceptable impacts to aquatic ecology within, or downstream, of the proposal.

[94] She notes that the subsidence troughs in creeks will promote settlement of sediment which will return the creek beds to their pre-development grade over time. She considers any potential scour of the creek banks to be marginal compared with the scour and erosion that already occurs during high flow events.

[95] Ms Thorburn notes there is certainty about the baseline aquatic ecology conditions and there have been no aquatic ecology impacts from the existing mine. She does not expect any impact to the Issac River.

[96] She says that climate change will impact all waterways and wetlands within the proposal area, whether or not the proposal proceeds. She says that the creation of subsidence areas may improve refuge habitat during drought conditions. The subsidence areas will not result in significant impacts to fish passage. Where appropriate, culverts will be constructed to facilitate fish passage.

Economics impacts and viability of the Project

[97] The Objectors say that the Project will be financially exposed to market responses as the world deals with climate change.

[98] The Objectors' submission as to economic viability was premised on BBC producing thermal coal. That is a very small part of the Project's proposed output.

[99] As the report of Shaun Browne shows, most of the coal produced will be used in the production of steel. The report also shows that coal steel production will be required for the next thirty years and will, in fact, aid the transition to renewable energy.

[100] The Objectors say that BBC has not adequately demonstrated, through sufficient geotechnical bores, that the land is sufficiently mineralised. While mineralisation is a factor for a referral under the *Mineral Resources Act 1989* it is not a specific factor under the EP Act.

[101] Ben Armitage, general manager of BBC, has detailed BBC's extensive exploration and testing program to confirm the extent of the Project's coal resource. Mr Roberts' report confirms that the land is sufficiently mineralised.

[102] This objection is without foundation.

A full cost benefit analysis

[103] The Objectors also say that there has not been a full cost-benefit analysis of the Project compared with the alternatives nor has there been a proper evaluation of the true costs of the adverse impacts of the Project.

[104] That was true at the time of the objections. Since then, BBC commissioned a report from Jerome Fahrer.

[105] Dr Fahrer is an economist with over 40 years' experience, particularly in considering the economics of coal mines.

[106] Dr Fahrer used Computable General Equilibrium modelling (**CGE model**), which takes account of supply constraints, price and wage effects and a time dimension. CGE models start by assuming that all markets in an economy are in equilibrium.

[107] The Project is referred to as a shock, which changes demand and supply in all markets directly and indirectly linked to coal markets. Demand and supply are adjusted after the shock until all markets are, again, in equilibrium. CGE models calculate two paths for the economy – one with the Project and one without.

[108] Using CGE modelling, Dr Fahrer predicts that the Project will add $2.744M to the region's economic production, an extra $1.233B to the rest of Queensland and an extra $408M to the rest of Australia. He says there will be an increase in real economic output of $220M/pa for nearly 40 years, 85% of which will be in Queensland.

[109] Dr Fahrer says it is reasonable to include the cost of Scopes 1 and 2 GHG emissions in the analysis because they are costs of the Project. He says that Scope 3 emissions are costs of a different project and, if they were included, the analysis would also have to include the costs and benefits of the projects that used the coal.

[110] However, Dr Fahrer was asked to consider the effect of including Scope 3 emissions.

[111] Dr Fahrer says that it not reasonable to attribute 100% of the GHG costs to Queensland, based on the economic analysis of public good. Climate change is a "public bad" with a global reach. The cost of climate change is the sum of the individual costs to all people in the world. Additional climate change costs are the sum of additional costs to all people in the world. He thinks that, in a cost benefit analysis, Queensland should bear the "public bad" in proportion of its population to the global population.

[112] Dr Fahrer thinks that the economic benefits of the project outweigh the costs "by a considerable margin" of between 23% and 29%. Dr Fahrer considers there is a large buffer against future uncertainty.

Energy Markets

[113] Mark Gresswell has over 25 years' experience as a resource and energy consultant. He says that in 2025, the seaborne metallurgical coal[6] market was approximately

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[6] Metallurgical coal produced in one country, consumed by another country and transported to that country by sea.

300Mt. Australia is the largest supplier to that market, having a market share of about 48.5%.

[114] He says that industry forecasts predict a rise in seaborne metallurgical coal to 376Mt by 2050, even though there will be a fall in global metallurgical coal demand. Mr Gresswell explains that there will be a supply gap because many currently operating mines will cease, either because their resource is exhausted, or their mining leases have expired. That gap will be filled by the seaborne coal market.

[115] Mr Gresswell relied on the affidavit of Mr Armitage in which he stated that the Project will produce coal of similar quality to the existing mine and that BBC expects it will sell to existing customers, including Nippon Steel Corporation and China Steel Corporation. Mr Gresswell says that market continuity is important. Consequently, Mr Gresswell thinks there will be a market for BBC coal to the projected end date for the Project.

[116] Mr Gresswell also thinks that there will be an increase in global electricity demand that will not be met without some use of thermal coal. As with metallurgical coal, Mr Gresswell notes that many mines are closing and/or have depleted resources.

[117] Mr Gresswell has outlined the nationally determined contributions (**NDCs**) under the Paris Agreement of the countries into which BBC proposes to sell its coal. He states that the NDCs are a contributing factor in the formulation of energy policy in these countries. The NDCs presuppose a reduction in the demand for coal.

[118] He says that the NDCs don't necessarily mean that national energy policies will be implemented or achieved. He points to the wars in Ukraine and Iran creating a shift of focus from emissions and climate change back to energy security and stability. He also notes the increased demand for electricity generated by the rise in artificial intelligence and data centres.

Social Impacts of the Project

[119] Christopher Mahoney has a Master of Environmental Planning (Social Planning). He has over 20 years' experience in undertaking social impact assessments for resource and infrastructure projects.

[120] Mr Mahoney applies a methodology that considers the likelihood of an impact and the magnitude of its effect. The impacts are initially assessed without regard to any mitigation or enhancement measures.

[121] Mr Mahoney identified 15 impacts from the Project; 10 negative and 5 positive. None of the negative impacts had a high residual impact. Eight of them had a medium negative impact and two had a low negative impact. In summary, the negative impacts were:

(a) Health and wellbeing of the workforce;

(b) Shortages in construction and mining skills in the Isaac local government region;

(c) The effect on local housing availability and cost;

(d) Constrained availability of goods, services and labour;

(e) Increased demand for health services and child care placements;

(f) Increase risk of road accidents; and

(g) Increase in demand for emergency services.

[122] The positive impacts were:

(a) Provision of long-term employment;

(b) Development of skills and enhanced employment prospects for young people and those with no previous mining experience;

(c) Continuation and potential expansion of economic opportunities for local and regional businesses;

(d) Population retention; and

(e) Provision of community investment initiatives.

[123] Without the Project, there were seven impacts assessed; six negative and one positive. Of the negative impacts, four had high significance and two had a medium significance. In summary, the negative impacts were:

(a) Loss of employment and associated economic resources;

(b) Reduced investor confidence in local housing market;

(c) Reduction in local expenditure;

(d) Pressure on community services due to population decline; and

(e) Diminished sustainability and vitality of Dysart.

[124] The only positive impact of not proceeding with the Project was the increased availability of housing due to loss of the mining workforce.

[125] BBC is required to produce a social impact management plan (SIMP) and to review that plan annually. The SIMP must include:

(a) A community and stakeholder engagement plan;

(b) A workforce management plan;

(c) A housing and accommodation plan;

(d) A local business and industry procurement plan; and

(e) A health and community wellbeing plan.

[126] BBC has already committed to a community investment plan. Mr Armitage states that the Project will provide a mix of new and refurbished accommodation options, supporting initiatives that help workers and their families settle locally.

[127] Of the 339 submitters, 309 voiced their support for the Project. BBC has also filed 15 affidavits from locals in support of the Project. Those who own businesses in Dysart fear that, without the Project, they will have to close or relocate. Those who run social services (i.e. the bowls club, golf club, childcare and an amateur boxing club) rely on BBC's support for their continuation.

[128] Dysart experienced a significant downturn when the Norwich Park mine closed in 2012. The town was left with only essential services. The local community does not want to see that experience repeated.

[129] BBC has provided a draft SIMP. Mr Mahoney has reviewed that plan. He has reviewed each proposed mitigation strategy against the likely negative impacts from the Project. He considers the SIMP adequate to mitigate or manage the social impacts of the Project.

[130] Mr Mahoney was also asked to consider whether the Project would impact any human rights. With all due respect to his views, that is a question of law, not of expert opinion.

The Human Rights Act Criteria

[131] A public entity, which includes DETSI and the Court in its recommendatory function, is required not just to decide whether the decision is compatible with human rights but to identify what rights may be affected, and whether those rights are limited. If the

rights are limited, s 13 of the HR Act requires a thorough examination of the nature and purpose of the limitation, whether there is a less restrictive way of achieving the purpose, the importance of the purpose, the importance of the human right and the balance between the limitation and the human right.

[132] The Court has previously invoked a five-step consideration of human rights issues. In this case, only three steps are necessary:

(a) Is a human right engaged?

(b) Is there a potential limitation to that human right?

(c) Is the limitation justifiable?

[133] DETSI has undertaken a thorough examination of the potential effect on human rights and has concluded that, if any is limited, the limitation is reasonable. DETSI's analysis does not relieve me from conducting the same exercise, but it is pleasing that this aspect of DETSI's analysis of the Project is demonstrably more than cursory.

[134] There are five potential human rights engaged:

(a) s 15 – Recognition and equality before the law;

(b) s 24(2) – Right to property;

(c) s 25(a) – Right to privacy;

(d) s 16, s 26(2) – Right to life and protection of children; and

(e) s 28 – Cultural rights—Aboriginal peoples and Torres Strait Islander peoples.

[135] There is no evidence before me that either the right to property or the right to privacy will be impacted by the Project. There is no evidence that any person's interest in property is affected by an effect on their access to land or water, or the quality of the air or ambient noise. There is no evidence that the Project will affect any person's privacy by interfering with their home. These rights are not engaged.

[136] Recognition and equality before the law, the right to life and the rights of children are all concerned with GHG emissions.

[137] In *Waratah Coal Pty Ltd v Youth Verdict Ltd & Ors (No 6)*[7] Kingham P (as her Honour then was) undertook an exhaustive analysis of the interaction between GHG emissions and the potential limitation on human rights. She concluded that the mining of coal that will be burnt established a sufficient causal connection to find that activity had the capacity to limit a human right[8]. Drawing on international jurisprudence, her Honour found that it is not necessary to show a claimant has suffered harm to show that a right to life has been violated[9].

[138] For present purposes, despite the absence of any evidence to support the proposition, I accept that there is a sufficient causal link between the Project and the human rights identified, although I reiterate my previous observations that denial of a person's recognition and equality before the law requires something more than simply identifying that they are more likely to be affected by climate change.

[139] I have also previously acknowledged that every tonne of coal burnt contributes to GHG emissions and, therefore, to climate change. I therefore accept the potential for those rights to be limited by the Project.

[140] In the present case, BBC submits that the rights are not engaged because the Project's Scope 1 and 2 emissions are small in the relevant context, regulated under the Safeguard Mechanism, and controlled by the GHG abatement plan.

[141] I accept those propositions, but they do not mean that the rights are not engaged nor that they are limited. They are relevant to whether the limitation is justified.

[142] Teila Moura Watson is a Birri Gubba-Wiri and Gangulu woman, whose role involves advocating for First Nations rights. She provided an affidavit expressing concerns:

(a) that the clearing of brigalow would impact ecological functions to keep country balanced and healthy in line with cultural obligations;

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7 [2022] QLC 21 ('*Waratah*').

8 *Waratah* at [1352].

9 *Waratah* at [1361].

(b) that the removal of coal has a significant negative effect on the country's ecological balance;

(c) climate change impacts her People's ability to pass culture onto future generations;

(d) that the Project contributes to her People's inability to inhabit traditional Country; and

(e) that depletion of the quality and quantity of groundwater is a depletion of a life source.

[143] I accept that the Project engages Ms Watson's cultural rights.

[144] Jack Wallace provided an affidavit stating that there was no formal youth consultation prior to the Project and expressing the view that the Project's assessment fails to adequately address intergenerational equity. Mr Wallace considered that approvals should prioritise renewable energy projects, job transition schemes and rigorous environmental impact assessments.

[145] DETSI considered the issue of intergenerational equity. It decided that "the health, diversity and productivity of the environment will continue to be maintained for the benefit of future generations through the implementation of the existing EA conditions." As always, the question of intergenerational equity is a balancing act. Given that the progression to renewable energy requires the production of steel, and steel cannot be produced without coal, I am satisfied that the balance is maintained.

[146] In addressing Ms Watson's concerns, I note that the region has already been the subject of extensive colonial intervention through grazing. Native title has been extinguished over all land in the Project area. BBC has conducted a cultural heritage survey and has obtained unconditional cultural heritage clearance. It has operated under a cultural heritage management plan with the local First Nations people – Barada Barna – since 2007. I have already commented on the likely ecological effects of the Project; they are minimal.

[147] In addressing Mr Wallace's concerns, I note that there has been a rigorous environmental impact assessment. I note that a transition to renewable energy is not possible without coking coal and that renewable energy is currently no substitute for the energy produced by coking coal. I accept that job transition is an important issue. Kings' Counsel for BBC acknowledged as much in his closing submissions.

[148] The Project is an extension of an existing mine. It will use existing infrastructure, an existing workforce and support an existing community. It will produce high quality coking coal which is vital to the production of steel that will be used in creating infrastructure for developing communities and in the transition to renewal energy. There is presently, no substitute for the use of metallurgical coal in steel production.

[149] The GHG emissions from the Project have been addressed. While there is no doubt that there will be GHG emissions, they are regulated, within scope and a very small proportion of global emissions.

[150] As BBC has identified, it is subject to the Safeguard Mechanism and has produced a GHG abatement plan that contains specific, measurable goals. It has already identified a mitigation strategy through the gas drainage proposal.

[151] I am satisfied that any limitation to human rights, including Ms Watson's cultural rights, is justified.

Conclusion

[152] Nine submitters objected. Two of those submitters elected to be treated as an objector for the purpose of a referral to this Court.

[153] Only one submitter elected to be an active objector. In May 2026, almost one year after this proceeding was referred to the Court, the active objector elected to become an inactive objector.

[154] By that time, most of BBC's expert reports had been filed. Those reports are comprehensive and, so far as is possible in an area replete with technical jargon, easy for a lay person to understand. Presumably, the reports triggered the objector's decision to become inactive. In the face of those reports, the objector could have withdrawn its objections, saving the Court time and the parties much time and expense. Regrettably, that was not to be.

[155] Having said that, the reports provided to the Court are more comprehensive than those in the EIS. The experts have all suggested changes to the draft EA which both BBC and DTESI have identified as practical and reasonable. Importantly, BBC embarked on an extensive and expensive analysis of its gas drainage system that has resulted in a proposal that will significantly reduce fugitive emissions. None of these changes would have been made without the intervention of the Court process.

Orders

1. **I recommend to the administering authority responsible for the *Environmental Protection Act 1994* that EPML 00659513 be approved subject to the environmental authority attached.**

2. **I direct the Registrar of the Land Court to provide a copy of these reasons and access to the Land Court e-trial site to the administering authority under the *Environmental Protection Act 1994*.**

3. **The parties may make written submissions about costs within 21 days.**

Permit

Environmental Protection Act 1994

DRAFT Environmental authority EPML00659513

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Environmental authority number: EPML00659513

Environmental authority takes effect on DRAFT

Environmental authority holder(s)

Name(s)	Registered address
Bowen Basin Coal Pty Ltd	Level 7 12 Creek Street BRISBANE QLD 4000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 13 – Mining black coal	ML70331 ML70477 ML70528 ML700080
Ancillary 08 – Chemical Storage 3: Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c)	
Ancillary 16 – Extraction and Screening 2: Extracting, other than by dredging, in a year, the following quantity of material (a) 5,000t to 100,000t	
Ancillary 31 – Mineral processing 2: Processing, in a year, the following quantities of mineral products, other than coke (b) more than 100,000t	
Ancillary 33 – Crushing, milling, grinding or screening Crushing, grinding, milling or screening more than 5000t of material in a year	
Ancillary 38 – Surface Coating 2: Coating, painting or powder coating, using, in a year, more than 100t of surface coating materials	
Ancillary 56 – Regulated Waste Storage: Receiving and storing regulated waste	
Ancillary 60 – Waste disposal 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) (a) less than 50,000t	
Ancillary 63 – Sewage Treatment 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of (b-i) more than 100 but not more than 1500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme.	

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that an owner or occupier of contaminated land give written notice to the administering authority if they become aware of the following:

- the happening of an event involving a hazardous contaminant on the contaminated land (notice must be given within 24 hours); or
- a change in the condition of the contaminated land (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the contaminated land (notice must be given within 20 business days);

that is causing, or is reasonably likely to cause, serious or material environmental harm.

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term 'duty to notify'.

Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

a. if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority-on the nominated day; or

b. if the authority states a day or an event for it to take effect-on the stated day or when the stated event happens; or

c. otherwise-on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Sustainable Planning Act 2009* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.

Signature	Date

Dr Alison Cummings
Department of the Environment, Tourism, Science and Innovation
Delegate of the administering authority
Environmental Protection Act 1994

Date issued: DRAFT

Enquiries:
Business Centre (Coal)
Department of the Environment, Tourism Science and Innovation
PO Box 3028
EMERALD QLD 4720
Phone: (07) 4987 9320
Email: CRMining@des.qld.gov.au

Obligations under the Environmental Protection Act 1994

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any activity at the site.

Conditions of Environmental Authority

The environmentally relevant activity(ies) conducted at the location as described above must be conducted in accordance with the following site-specific conditions of approval. This environmental authority consists of the following Schedules and Appendices:

Schedule A	General
Schedule B	Air
Schedule C	Water
Schedule D	Groundwater
Schedule E	Sewage Treatment
Schedule F	Acoustic
Schedule G	Land
Schedule H	Waste
Schedule I	Regulated Structures
Schedule J	Watercourse Diversions

Definitions

Attachment 1: Authorised Disturbance Footprint (Lake Vermont Coal Mine)
Attachment 2: Authorised Disturbance Footprint (Meadowbrook Project)
Attachment 3: Approved exploration and gas drainage disturbance
Attachment 4: Groundwater Bore Monitoring Locations (Lake Vermont Coal Mine)
Attachment 5: Groundwater Bore Monitoring Locations (Meadowbrook Project)
Attachment 6: Identified GDE locations (Meadowbrook).
Attachment 7: MSES authorised significant impact areas
Attachment 8: Poplar Box TEC authorised significant impact areas
Attachment 9: Brigalow TEC authorised significant impact areas
Attachment 10: Ornamental Snake authorised significant impact areas
Attachment 11: Greater Glider authorised significant impact areas
Attachment 12: Koala authorised significant impact areas
Attachment 13: Authorised areas of residual subsidence ponding and authorised impacts to GDE's
Attachment 14: Approximate location of gas drainage pilot program

Schedule A: General	
Condition number	**Condition**
A1	This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.
A2	**Scope of approval** The environmental authority holder is approved for a maximum coal extraction rate of **twelve (12) million** tonnes per annum (Mtpa) of run-of-mine (ROM) coal in accordance with the conditions of this environmental authority.
A3	In carrying out the mining activity authorised by this environmental authority, the holder of this environmental authority must comply with **Attachment 1: Authorised Disturbance Footprint (Lake Vermont Coal Mine)** and **Attachment 2: Authorised Disturbance Footprint (Meadowbrook Project)** attached to this environmental authority.
A4	The holder of this environmental authority must: (a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; (b) Maintain such measures, plant and equipment in a proper and efficient condition; (c) Operate such measures, plant and equipment in a proper and efficient manner; and (d) Ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.
A5	**Monitoring** Except where specified otherwise in another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than **five (5) years**.
A6	Monitoring and determinations required under any condition of this environmental authority must be conducted by an appropriately qualified person.
A7	**Management Plan, Monitoring programs and Reports** Management plans, monitoring programs and reports required under any condition of this environmental authority must be developed by an appropriately qualified person.

A8	Upon request from the administering authority, copies of monitoring results, records, registers, monitoring programs, management plans and reports required by the conditions of this environmental authority must be made available and provided to the administering authority within: (a) **Ten (10) business days**; or (b) An alternative timeframe agreed between the administering authority and the environmental authority holder.
A9	**Risk Management** The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the 'Standard for Risk Management (ISO31000:2009)', or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management.
A10	**Notification of Emergencies, Incidents and Exceptions** The holder of this environmental authority must notify the administering authority by written notification within **twenty-four (24) hours**, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.
A11	Within **ten (10) business days** following the initial notification of any emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following: (a) Results and interpretation of any samples taken and analysed; (b) Outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and (c) Proposed actions to prevent a recurrence of the emergency or incident.
A12	**Complaints** The holder of this environmental authority must record all environmental complaints received about the mining activities including: (a) Name, address and contact number for of the complainant; (b) Time and date of complaint; (c) Reasons for the compliant; (d) Investigations undertaken; (e) Conclusion formed; (f) Actions taken to resolve the complaint; (g) Any abatement measures implemented; and (h) Person responsible for resolving the complaint.

A13	Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must: (a) Comply with the amended or changed standard, policy or guideline within two years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, or where the amendment or change relates specifically to regulated structures referred to in **conditions I1** and **I34**, the time specified in that condition; and (b) Until compliance with the amended or changed standards, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.
A14	**Toll washing** Third-party coal is authorised to be received, stockpiled and processed at the licenced place, provided the following are completed for each third-party coal source: (a) A geochemical assessment in accordance with condition **A17;** (b) A record of the geochemical properties of all third-party coal received at the licenced place; and (c) A record of the quantity (tonnes) of all third-party coal received at the licenced place.
A15	The maximum total quantity of coal permitted to be received, stockpiled and processed at the licenced place in accordance with condition **A14** must remain within the approved coal extraction rate in condition **A2**.
A16	The holder must notify the administering authority in writing on the day that activities authorised under condition **A14** commence.
A17	The geochemical assessment required by condition A14(a) must: (a) Be completed and recorded by an appropriately qualified person; (b) Be based on a representative number of samples of third-party coal reject, as determined by an appropriately qualified person; (c) Conclude whether the geochemical properties of the third-party coal reject materials are substantially similar to the geochemical properties of the coal rejects authorised to be mined from the licenced place; and (d) Identify all contaminants introduced to the licenced place by the third-party coal.

A18	Where the geochemical assessment required by conditions **A14(a)** and **A17** identifies that the geochemical properties of third-party coal reject are not substantially similar to the geochemical properties of the coal reject authorised to be mined from the licenced place, the environmental authority holder must: (a) Ensure rejects are disposed at the originating third-party coal mine; or (b) Develop and implement a third-party specific rejects management and disposal plan prior to processing the relevant third-party coal that: (i) Details the additional or different risks associated with the third-party coal rejects; and (ii) Controls the risks to environmental values from **A18(b)(i)**.
A19	**Gas Drainage Pilot Program (Lake Vermont Mine)** The holder of this environmental authority is authorised to establish a gas drainage pilot program located within the area indicated on **Attachment 14: Approximate location of gas drainage pilot program**, within the authorised disturbance footprint of ML70528 and ML70331.
A20	The gas drainage pilot program authorised in condition **A19** may be conducted for a maximum duration of **five (5) years** from commencement of the gas drainage activities.
A21	The holder must notify the administering authority in writing on the day that activities authorised under condition **A19** commence.
A22	**Flaring** A total of **ten (10)** gas drainage flares are authorised to be constructed for mining activities on ML700080 (Meadowbrook Project) in accordance with **Attachment 3: Approved exploration and gas drainage disturbance**.
A23	The flares constructed for the purpose of gas drainage on ML700080 (Meadowbrook Project) must consider the expectations of the Greenhouse gas abatement plan and: (a) Be located in an area of pre-cleared disturbance (as far as practicable); (b) Be located 100m away from any watercourse; (c) Not exceed an area of 70m x 70m for disturbance associated with each flare; and (d) Consider the requirements of the Greenhouse Gas Abatement Plan required by **Condition B13**.

A16	**Conditions for Flares** A Gas Drainage Management Plan must be developed (by an independent appropriately qualified person) and implemented prior to construction of the Meadowbrook Project, for all activities on ML700080. The Gas Drainage Management Plan must ensure that: (a) Flaring is implemented as a minimum abatement measure for drainage gas destruction. (b) Enclosed flares are prioritized where practicable due to their higher destruction efficiency. (c) Flare downtime is minimized to reduce methane venting through measures such as self-ignition functionality and a rectification program to address potential self-ignition failures. (d) Methane leakage is minimized through measures such as a periodic leak detection and repair program. (e) A review program is established to reassess the Gas Drainage Management Plan every **two (2) years** to ensure the implementation of best available practices for drainage gas abatement, including power generation where feasible.

Schedule B: Air	
Condition number	**Condition**
B1	**Dust Nuisance** The release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.
B2	**Dust and particulate matter monitoring** When requested by the administering authority, an investigation must occur of any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within **ten (10) business days** to the administering authority following the completion of the investigation.

B3	**Dust and Particulate Matter Monitoring** Monitoring conducted under condition **B2** must be carried out at a place or places relevant to the potentially affected dust sensitive place as agreed upon with the administering authority. Dust and particulate matter must not exceed the following levels when measured at the agreed locations. The environmental authority holder shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measure at any sensitive or commercial place: (a) Dust deposition of **120 milligrams per square metre per day**, averaged over 1 month, when monitored in accordance with the most relevant version of '*Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method'*. (b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere of **50 micrograms per cubic metre** over a **24-hour averaging time**, for no more than 5 exceedances [Note 1] recorded each year, when monitored in accordance with the most recent version of either: (i) 'Australian Standards *AS3580.9.6 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} high volume sampler with size-selective inlet – Gravimetric method'*; or (ii) 'Australian Standards *AS3580.9.9 methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} low volume sampler – Gravimetric method'*; or (iii) Any alternative method of monitoring PM10 which may be permitted by the 'Air Quality Sampling Manual' as published from time to time by the administering authority. (c) A concentration of total particulate matter suspended in the atmosphere of **90 micrograms per cubic metre** over a **one (1) year averaging time**, when monitored in accordance with the most recent version of '*AS/NZ3580.9.3:2003 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method'*. *[Note 1]: The five exceedances for the PM_{10} standard were introduced to account for the impact of bushfires, dust storms and fuel reduction for fire management purposes. The five exceedances are in essence arbitrary in that the number was chosen as it is difficult to determine exactly the number of times these events may happen in any one year. More than five exceedances as a result of one or more of these events would not be considered to be a breach of condition.*
B4	The ROM haul road from ML700080 (Meadowbrook project) to the existing CHPP must be sealed with bitumen or an equivalent hard surface and cleaned as necessary to minimise the release of dust and particulate matter to the atmosphere.

B5	**Air Monitoring Plan** An **air monitoring plan** is to be developed and implemented prior to construction and be implemented for all stages of mining activities on ML700080 (Meadowbrook project). The air monitoring plan must include: a) the monitoring location(s), types and parameters; b) location of sensitive receptors; c) description and spatial distribution of the dust generating activities; d) the effectiveness of the monitoring network including the appropriateness of the monitoring locations to act as suitable representative sites for sensitive places (if there is no monitoring at a particular sensitive place); e) align with monitoring methods and contaminants outlined in condition **B3**; f) mitigation measures (both preventive and in case of exceedance); g) record of air emission complaints and actions taken; h) record of exceeded levels at monitoring locations and actions taken; and i) an Air Emissions Control Strategy as per condition **B10**.
B6	The Air Monitoring Plan required by condition **B5** must be reviewed every **three (3) years**. The review must be documented and must: (a) include a statement that the Air Monitoring Plan has been reviewed by an appropriately qualified person; (b) assess the plan against the requirements of Condition **B5**; (c) include recommended actions to ensure actual and potential environmental impacts are effectively managed; (d) provide details and timelines of the actions to be taken; and (e) identify any amendments made to the Air Monitoring Plan.
B7	The environmental authority holder must submit an amendment application to populate **Table B2 Dust and Particulate Matter Monitoring Locations** of this environmental authority **three (3) months** prior to the commencement of construction activities on ML700080 (Meadowbrook Project).
B8	**Meadowbrook air quality monitoring** The environmental authority holder must conduct monitoring as per **Table B1 Ambient Air Quality Limits and Monitoring Requirements** at the location(s) detailed in **Table B2 Dust and Particulate Matter Monitoring Locations**.
B9	The monitoring in accordance with **condition B8** must commence prior to the commencement of construction activities on ML700080 (Meadowbrook Project).

B10	**Air Emissions Control Strategy** The environmental authority holder must develop and implement a Meadowbrook Air Emissions Control Strategy prior to construction activities on ML700080 (Meadowbrook project) that includes an action plan to prevent exceedances of air emissions as per the limits in condition **B3**. The Meadowbrook Air Emissions Control Strategy must be immediately activated when monitoring indicates that air emissions are increasing and have the potential to exceed the limits stated in condition **B3**, and in response to air quality complaints.
B11	**Odour** The release of noxious or offensive odour(s) or any other noxious or offensive airborne contaminant(s) resulting from the mining activity must not cause an environmental nuisance at any sensitive or commercial place.
B12	**Emissions - Gas drainage pilot program (Lake Vermont Mine)** The holder of this environmental authority must seek to flare all waste gas generated as a result of the gas drainage pilot program authorised under condition **A19**. Management of flaring activity must: (a) adopt an automated ignition system; (b) ensure a flame is visible at all times when the gas is being flared; (c) minimise visible smoke emissions as far as practicable; and (d) ensure methane leakage is minimized through measures such as a periodic leak detection and repair program.
B13	**Greenhouse gas (GHG) abatement plan (Meadowbrook Project)** A GHG abatement plan must be developed and implemented for the Meadowbrook project prior to the commencement of mining activities on ML700080 and for the duration of mining activities authorised. The GHG abatement plan must address the content requirements of Appendix A of the latest version of the Queensland Greenhouse gas emissions Guideline (ESR/2024/6819).
B14	Every **two (2) years**, the environmental authority holder must review the effectiveness of the GHG abatement plan required by **condition B13** and update the plan to address any matters identified in the review.
B15	At all times, the environmental authority holder must comply with the GHG abatement plan required by **condition B13**, as updated from time to time.

Table B1 — Ambient Air Quality Limits and Monitoring Requirements (Meadowbrook Project)

Monitoring location	Air Quality Indicator	Monitoring Frequency	Air Quality Limit	Monitoring Method
All sites as specified in Table B2	PM_{10}	Continuous	50µg/m^3(24-hr avg)	AS/NZS 3580.9.6:2015 AS/NZS3580.9.7:2009 AS3580.9.8:2022 AS358.9.9:2017 AS/NZS35801.9.11:2022
	TSP	Continuous	90µg/m^3	AS/NZS 3580.9.3:2015 *Any alternative method of monitoring TSP that may be permitted by the Air Quality Sampling Manual as published from time to time by the administering authority.*
	Dust deposition	Continuous	120mg/m^2/day	AS/NZS3580.10.1:2003
	Wind speed and direction, Temperature, Precipitation, Relative humidity	Continuous	N/A	AS/NZS 3850.14:2014

Table B2 - Dust and Particulate Matter Monitoring Locations

Monitoring Point	Receiving area	Latitude (decimal degree, GDA2020)	Longitude (decimal degree, GDA2020)	Monitoring description
TBC	TBC	TBC	TBC	PM_{10}, TSP, Dust Deposition, Met Station
TBC	TBC	TBC	TBC	TBC
TBC	TBC	TBC	TBC	TBC

Schedule C: Water	
Condition number	**Condition**
C1	Contaminants that will, or have the potential to, cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.
C2	Unless otherwise permitted under conditions **C35** to **C48** of this environmental authority, the release of mine affected water to waters must only occur from the release points specified in **Table C1** – **Mine Affected Water Release Points, Sources and Receiving Water**s and depicted in **Attachment 1: Authorised Disturbance Footprint (Lake Vermont Coal Mine)** attached to this environmental authority.
C3	The release of mine affected water to internal water management infrastructure that is installed and operated in accordance with a water management plan that complies with condition **C27** to **C29** inclusive is permitted.

Table C1 – Mine Affected Water Release Points, Sources and Receiving Waters

Release Point (RP)	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)	Mine Affected Water Source and Location	Monitoring Point	Receiving Waters Description
RP1	-22.430487	148.443307	Mine Area	Pipe or drain	Unnamed gully and Isaac River
RP2	-22.437687	148.448207	Mine Area	Pipe or drain	Unnamed gully and Isaac River
RP3	-22.462087	148.463807	Mine Area	Pipe or drain	Unnamed gully and Isaac River
RP4	-22.428887	148.388607	Mixed Mine Water (pumped to release point)	Pipe or drain	Phillips Creek
RP5	-22.390487	148.431907	Mixed Mine Water (pumped to release point)	Pipe or drain	Phillips Creek
RP6	-22.436187	148.384507	Mixed Mine Water (pumped to release point)	Pipe or drain	Phillips Creek
RP7	-22.443587	148.384607	Mixed Mine Water (pumped to release point)	Pipe or drain	Phillips Creek
RP8	-22.363587	148.450207	Mixed Mine Water Release	Pipe or drain	Phillips Creek
RP9	-22.412487	148.460307	Mixed Mine Water Release	Pipe or drain	Unnamed gully and Isaac River
RP10	-22.395387	148.409707	Mixed Mine Water Release	Pipe or drain	Unnamed gully and Isaac River

C4	Conditions **C5, C9, C10, C11, C17, C19** and **C20** do not apply when releasing mine affected water under enhanced contaminated release conditions specified in conditions **C35** to **C48**, at release points specified in condition **C35**.
C5	The release of mine affected water to waters in accordance with condition **C2** must not exceed the release limits started in **Table C2 – Mine Affected Water Release Limits** when measured at the monitoring points specified in **Table C1 – Mine Affected Water Release Pints, Sources and Receiving Waters** for each quality characteristic.
C6	The release of mine affected water to waters from the release points must be monitored at the locations specified in **Table C1 Mine Affected Water Release Points, Sources and Receiving Water** for each quality characteristic and at the frequency specified in **Table C2 – Mine Affected Water Release Limits** and **Table C3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants**. *Note: The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition C6 is contravened due to a temporary lack of safe or practicable access. The administering authority expects the environmental authority holder to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.*

Table C2 – Mine Affected Water Release Limits

Quality Characteristic	Release Limits	Monitoring Frequency	Comment
Electrical conductivity (µS/cm)	Release limits specified in **Table C4** for variable flow criteria.	Daily during release (the first sample must be taken within 2 hours of commencement of release)	
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	Daily during release (the first sample must be taken within 2 hours of commencement of release)	
Turbidity (NTU)	N/A	Daily during release [Note 1] (first sample within 2 hours of commencement of release)	Turbidity is required to assess ecosystems impacts and can provide instantaneous results.
Suspended Solids (mg/L)	1,500	Daily during release [Note 1] (first sample within 2 hours of commencement of release)	Suspended solids are required to measure the performance of sediment and erosion control measures.
Sulfate (mg/L)	Release limits specified in **Table C4** for variable flow criteria	Daily during release (first sample within 2 hours of commencement of release)	

Note: Limit for suspended solids can be omitted if turbidity limit is included. Limit for turbidity not required if suspended solids limit included. Both indicators should be measured in all cases.

Table C3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants

Quality Characteristic	Trigger Levels (µg/L)		Comment on Trigger Level	Monitoring Frequency
Aluminium	55		For aquatic ecosystem protection, based on SMD guideline	Commencement of release and thereafter weekly during release
Arsenic	13		For aquatic ecosystem protection, based on SMD guideline	
Cadmium	0.2		For aquatic ecosystem protection, based on SMD guideline	
Chromium	1		For aquatic ecosystem protection, based on SMD guideline	
Copper	2		For aquatic ecosystem protection, based on LOR for ICPMS	
Iron	300		For aquatic ecosystem protection, based on low reliability guideline	
Lead	4		For aquatic ecosystem protection, based on SMD guideline	
Mercury	0.2		For aquatic ecosystem protection, based on LOR for CV FIMS	
Nickel	11		For aquatic ecosystem protection, based on SMD guideline	
Zinc	8		For aquatic ecosystem protection, based on SMD guideline	
Boron	370		For aquatic ecosystem protection, based on SMD guideline	
Cobalt	90		For aquatic ecosystem protection, based on low reliability guideline	
Manganese	1900		For aquatic ecosystem protection, based on SMD guideline	
Molybdenum	34		For aquatic ecosystem protection, based on low reliability guideline	
Selenium	10		For aquatic ecosystem protection, based on LOR for ICPMS	
Silver	1		For aquatic ecosystem protection, based on LOR for ICPMS	
Uranium	1		For aquatic ecosystem protection, based on LOR for ICPMS	
Vanadium	10		For aquatic ecosystem protection, based on LOR for ICPMS	
Ammonia	900		For aquatic ecosystem protection, based on SMD guideline	
Nitrate	1100		For aquatic ecosystem protection, based on ambient Qld WQ Guidelines (2006) for TN	
Petroleum hydrocarbons (C6-C9) (TPH)	20		For aquatic ecosystem protection, based on LOR	
Petroleum hydrocarbons (C10-C36) (TPH)	100		For aquatic ecosystem protection, based on LOR	
Fluoride (total)	2000		Protection of livestock and short term irrigation guideline	
Sodium (mg/L)	180		Australian Drinking Water Guidelines	

Notes:

1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.

*2. The quality characteristics required to be monitored as per **Table C3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants** can be reviewed once the results of two years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk, and it may be determined that a reduced monitoring frequency is appropriate or that certain quality characteristics can be removed from **Table C3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants** by amendment.*

3. SMD – slightly moderately disturbed level of protection, guideline refers ANZG (2018).

4. LOR – typical reporting for method stated. ICPMS/CV FIMS/GCMS – analytical method required to achieve LOR.

C7	If quality characteristics of the release exceed any of the trigger levels specified in **Table C3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants** during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified in **Table C3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants** and: (a) Where the trigger values are not exceeded then no action is to be taken; or (b) Where the downstream results exceed the trigger values specified in **Table C3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants** for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and (i) If the result is less than the background monitoring site data, then no action is to be taken; or (ii) If the result is greater than the background monitoring site data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority within **ninety (90) days** of receiving the result, outlining 1. Details of the investigations carried out; and 2. Actions taken to prevent environmental harm. *Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with **C7 (b)(ii)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.*
C8	If an exceedance in accordance with condition **C7 (b)(ii)** is identified, the holder of the environmental authority must notify the administering authority via WaTERS within **twenty-four (24) hours** of receiving the result.
C9	**Mine Affected Water Release Events** The holder must ensure a stream flow gauging station/s is installed, operated and maintained to determine and record stream flows at the locations and flow recording frequency specified in **Table C4 – Mine Affected Water Release During Flow Events**.
C10	The release of mine affected water to waters in accordance with **condition C2**, must only take place in accordance with the receiving water flow criteria for discharge specified in **Table C4 – Mine Affected Water Release During Flow Events** for the release point(s) specified in **Table C1 – Mine Affected Water Release Points, Sources and Receiving Waters**.
C11	The release of mine affected water to waters in accordance with **condition C2** must not exceed the release limits stated in **Table – C4 Mine Affected Water Release During Flow Events** when measured at the monitoring points specified in **Table C1 – Mine Affected Water Release Points, Sources and Receiving Waters** for each quality characteristic.

Table C4 – Mine Affected Water Release During Flow Events

Receiving Waters/ Stream	Release Point (RP)	Gauging Station	Gauging Station Latitude (decimal degree, GDA2020)	Gauging Station Longitude (decimal degree, GDA2020)	Receiving Water Flow Recording Frequency	Receiving Water Flow Criteria for Discharge (m^3/s)	Maximum Release Rate (for all combined RP flows)	Electrical Conductivity Release Limits
Isaac River	RP1 RP2 RP3 RP9	Isaac at Deverill (Gauging Station #130410 A)*	-22.172587	148.382207	Continuous (minimum daily)	≥37.5m^3/s	0.5m^3/s	Electrical conductivity: <1,500µS/cm (Maximum, based on protection of aquatic ecosystems) Sulfate: <300mg/L
Phillips Creek	RP4 RP5 RP6 RP7 RP8 RP10	Isaac at Deverill (Gauging Station #130410 A)*	-22.172587	148.382207	Continuous (minimum daily)	Low/No Flow – 28 days after natural flow events that exceed 7.5m^3/sat Isaac at Deverill	0.5m^3/s	Electrical conductivity: <720µS/cm Sulfate: <300mg/L
Phillips Creek	RP4 RP5 RP6 RP7 RP8 RP10	Isaac at Deverill (Gauging Station #130410 A)*	-22.172587	148.382207	Continuous (minimum daily)	Medium Flow ≥7.5 m^3/sin the Isaac River	<0.610m^3/s	Electrical conductivity: 1,500µS/cm Sulfate: <600mg/L
Phillips Creek	RP4 RP5 RP6 RP7 RP8 RP10	Isaac at Deverill (Gauging Station #130410 A)*	-22.172587	148.382207	Continuous (minimum daily)	Medium Flow ≥ 7.5 m^3/sin the Isaac River	<0.223m^3/s	Electrical conductivity: <3,500µS/cm Sulfate: <1,200mg/L
Phillips Creek	RP4 RP5 RP6 RP7 RP8 RP10	Isaac at Deverill (Gauging Station #130410 A)*	-22.172587	148.382207	Continuous (minimum daily)	High Flow ≥1.0 m^3/s at Phillips Creek Gauging Station AND≥ 37.5 m^3/sin the Isaac River	<0.684m^3/s	Electrical conductivity: <5,500µS/cm Sulfate: <1,400mg/L

*Note: * Gauging stations operated by Department of Local Government, Water and Volunteers*

C12	The daily quantity of mine affected water released from each release point must be measured and recorded.
C13	Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.
C14	**Notification of Release Event** The environmental authority holder must notify the administering authority via WaTERS as soon as practicable and no later than **twenty-four (24) hours** after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information: (a) Release commencement date/time; (b) Expected release cessation date/time; (c) Release point; (d) Release volume (estimated); (e) Receiving water/s including the natural flow rate; and (f) Any details (including available data) regarding likely impacts on the receiving water(s).
C15	The environmental authority holder must notify the administering authority via WaTERS as soon as practicable within **twenty-four (24) hours** after cessation of a release notified under **condition C14**. The cessation notification must include the submission of written advice to the administering authority of the following information: (a) Release cessation date and time; and (b) Total volume of water released.
C16	The environmental authority holder must notify the administering authority within **twenty-eight (28) days** and provide the following information in writing via WaTERS: (a) Release commencement and cessation dates and time; (b) Natural flow rate in receiving water; (c) Volume of water released; (d) Details regarding the compliance of the release with the conditions of this environmental authority (i.e. contaminant limits, natural flow, discharge volume); (e) All continuous and in-situ water quality monitoring results (including laboratory analyses); and (f) Any other matters pertinent to the water release event.
C17	**Notification of Release Event Exceedance** If the release limits defined in **Table C2 – Mine Affected Water Release Limits** are exceeded, the holder of the environmental authority must notify the administering authority within **twenty-four (24) hours** of receiving the results.

C18	The environmental authority holder must, within **twenty-eight (28) days** of a release exceeding the conditions of this authority, provide a report to the administering authority via WaTERS detailing: (a) The reason for the release; (b) The location of the release; (c) All water quality monitoring results; (d) Any general observations; (e) All calculations; and (f) Any other matters pertinent to the water release event.
C19	**Receiving environment monitoring and contaminant trigger levels** The quality of the receiving waters must be monitored at the locations specified in **Table C6 – Receiving Water Upstream Background Sites and Downstream Monitoring Points** for each quality characteristic and at the monitoring frequency stated in **Table C5 – Receiving Waters Contaminant Trigger Levels**.
C20	If quality characteristics of the receiving water at Phillips Creek, Isaac River and Carfax Gully monitoring points exceed any of the trigger levels specified in **Table C5 – Receiving Waters Contaminant Trigger Levels** during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and: (a) Where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or (b) Where the downstream results exceed the upstream results complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining: (i) Details of the investigations carried out; and (ii) Actions taken to prevent environmental harm. *Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with **C20 (b)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.*

Table C5 – Receiving Waters Contaminant Trigger Levels

Quality Characteristic	Trigger Level	Monitoring Frequency
pH (pH units)	6.5 – 8.0	Daily during the release[1]
Electrical Conductivity (µS/cm)	1,000	
Suspended solids (mg/L)	1,500	
Sulfate (SO_4^{2-}) (mg/L)	300	
Sodium (mg/L)	180	

[1]Samples shall not be collected where temporary access to monitoring points presents a serious health and safety risk. However, the administering authority expects the environmental authority holder to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.

Table C6 – Receiving Water Upstream Background Sites and Downstream Monitoring Points

Monitoring Points	Receiving Waters Location Description	Latitude (GDA94)	Longitude (GDA94)
Upstream Background Monitoring Points[1, 3]			
MP1	Downs Creek at Mine Access and Golden Mile Road intersection	-22.5413	148.4091
MP2	Phillips Creek	-22.4502	148.3784
Downstream Monitoring Points[2]			
MP3	Isaac River	-22.3559	148.4941
MP4	Phillips Creek	-22.3820	148.4479
MP5	Isaac River	-22.4514	148.5611
MP6	Carfax Gully	-22.4549	148.5398

Notes:

[1]The upstream monitoring point should be within 5km of the release point.

[2] The downstream point should not be greater than 5km from the release point.

[3] The data from the background monitoring points must not be used where they are affected by releases from other mines.

C21	**Receiving Environmental Monitoring Program (REMP)** The environmental authority holder must develop and implement a Receiving Environmental Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of Phillips Creek and the Isaac River within 15km downstream of the release points. From the commencement of construction of the Meadowbrook Project, the REMP must also include monitoring of the receiving environment of One Mile Creek and Boomerang Creek. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water. The REMP should apply procedures and guidelines from ANZG and other relevant guideline documents.
C22	A REMP Design Document that addresses the requirements of the REMP must be prepared (including for the Meadowbrook Project) and made available to the administrating authority upon request.
C23	A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on request to the administrating authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.
C24	**Water Reuse** Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party (with the consent of the third party).

C25	**Annual Water Monitoring Reporting** The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority via WaTERS: (a) The date on which the sample was taken; (b) The time at which the sample was taken; (c) The monitoring point at which the sample was taken; (d) The measured or estimated daily quantity of mine affected water released from all release points; (e) The release flow rate at the time of sampling for each release point; (f) The results of all monitoring and details of any exceedances of the conditions of this environmental authority; and (g) Water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.
C26	**Temporary Interference with Waterways** Temporarily destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for, and associated with, mining activities must be undertaken in accordance with Department of Regional Development, Manufacturing and Water (or its successor) Guideline - Riverine protection permit exemption requirements.
C27	**Water Management Plan** A Water Management Plan must be developed and remain implemented for the duration of mining activities, and at a minimum include the following: a) Provide for effective management of actual and potential environmental impacts resulting from water management associated with the mining activity carried out under this environmental authority; and b) Be developed in accordance with the administering authority's guideline Application requirements for activities with impacts to water (ESR/2015/1837) and include: i. a study of source contaminants; ii. a water balance model for the site; iii. a water management system for the site; iv. measures to separate mine affected water and sediment stormwater in storages on site; v. measures to manage and prevent saline drainage; vi. measures to manage and prevent acid rock drainage; vii. contingency procedures for emergencies; and viii. a program for monitoring and review of the effectiveness of the water management plan.

C28	**Erosion and Sediment Control** An Erosion and Sediment Control Plan must be developed and implemented for all stages of the mining activities authorised under this environmental authority to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.
C29	The Erosion and Sediment Control Plan (for all Meadowbrook project activities) must demonstrate how erosion and sediment control measures detailed in the plan adequately minimise the release of sediment to receiving waters and must include at least the following: (a) An assessment of the size and characteristics of all catchment areas; (b) An assessment of relevant properties of soils and waste materials; (c) Identification of receiving waters environmental values, water quality objectives and management intent; (d) Specification of minimum design criteria for erosion and sediment control structures to achieve the management intent of receiving waters; (e) Locations and descriptions of all erosion and sediment control measures; and (f) An audit schedule to ensure erosion and sediment control measures are maintained.
C30	The Erosion and Sediment Control Plan required by condition **C28** must be reviewed every **three (3) years**. The review must be documented and must: (a) Include a statement that the Erosion and Sediment Control Plan has been reviewed by an appropriately qualified person; (b) Assess the plan against the requirements of condition **C29**; (c) Include recommended actions to ensure actual and potential environmental impacts are effectively managed; (d) Provide details and timelines of the actions to be taken; and (e) Identify any amendments made to the Erosion and Sediment Control Plan.
C31	A copy of the Erosion and Sediment Control Plan must be kept up to date following each review under condition **C30**.
C32	Stormwater, other than mine affected water, is permitted to be released to waters from: (a) Erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition **C28**; and (b) Water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with condition **C27**, for the purpose of ensuring water does not become mine affected water.

C33	**Water Storage monitoring** The quality of mine affected water in water storages in **Table C7 – Water storage monitoring** must be monitored: (a) At the locations in **Table C7 – Water storage monitoring**; (b) At the monitoring frequency in **Table C7 – Water storage monitoring**; and (c) For all quality characteristics specified in: (i) **Table C2 – Mine affected water release limits**; and (ii) Include the volume (ML) of the mine affected water at the time of monitoring.
C34	If results of any water storage monitoring under condition **C33** exceed a trigger value for livestock drinking water quality in ANZECC 2000 (or its successor), then all necessary actions must be taken to prevent access to the waters by livestock.

Table C7 – Water storage monitoring

Mine Affected Water Storage	Water Storage Description	Location (GDA 2020)		Monitoring point description	Monitoring frequency
		Latitude	Longitude		
Mine Water Dam	MAW storage dam (Meadowbrook)	TBC	TBC	TBC	Quarterly
Dewatering Dam	MAW storage dam (Meadowbrook)	TBC	TBC	TBC	Quarterly
Environment Dam #1	MAW storage dam (Lake Vermont)	-22.457353	148.405875	SW dam corner	Quarterly
Environment Dam #3	MAW storage dam (Lake Vermont)	-22.440789	148.406874	NW dam corner	Quarterly
Environment Dam #5	MAW storage dam (Lake Vermont)	-22.440827	148.401462	NE dam corner	Quarterly

C35	**Enhanced Contaminant Release** The enhanced release of mine affected water must only occur from release points RP4, RP5, RP6, RP7 and RP10, as specified in **Table C1 – Mine Affected Water Release Points, Sources and Receiving Waters** and depicted in **Attachment 1: Authorised Disturbance Footprint** (Lake Vermont Coal Mine) attached to this environmental authority.
C36	**Enhanced Contaminant Release – Control of Contaminant Releases** The enhanced release of mine affected water in accordance with **Condition C35**, must have release control mechanisms. Release control mechanisms must be: (a) Fitted at release points RP4, RP5, RP6, RP7 and RP10, as specified in **Table C1 – Mine Affected Water Release Points, Sources and Receiving Waters** and depicted in **Attachment 1: Authorised Disturbance Footprint** (Lake Vermont Coal Mine) attached to this environmental authority, prior to the commencement of an enhanced release at that point; (b) Capable of immediately ceasing the discharge of mine affected water; and (c) Able to reduce or stop the release when: (i) Downstream electrical conductivity (EC) approaches the limit specified in **Table C8 – Enhanced Receiving Waters Contaminant Trigger Levels**; or (ii) The administering authority requests the release be ceased.

Table C8 – Enhanced Receiving Waters Contaminant Trigger Levels

Quality Characteristic	Trigger Level	Monitoring Frequency
EC (µS/cm)	1,800	Real-time monitoring of pH, EC and flow at MP4 during active release to Phillips Creek. At other sites where real-time monitoring is not available, daily grab sampling during active release as soon as possible after commencement of release, when safe access permits (during daylight hours only).
pH (pH units)	6.5 – 9.0	
Suspended solids (mg/L)	1,500	Daily during release (first sample within two hours of commencement of release)
Sulfate (SO_4^{2-}) (mg/L)	300	
Sodium (mg/L)	180	

C37	**Enhanced Release Monitoring** The enhanced release of mine affected water in accordance with condition **C35**, must be able to be monitored via real-time telemetry (minimum hourly) for flow rate, EC and pH at: (a) The release points RP4, RP5, RP6, RP7 and RP10 as specified in **Table C1 – Mine Affected Water Release Points, Sources and Receiving Waters** prior to commencement of release at that point; and (b) At MP2 and MP4 as specified in **Table C6 – Receiving Water Upstream Background Sites and Downstream Monitoring Points** of this environmental authority.
C38	**Enhanced Release** All continuous environmental monitoring systems required by this environmental authority must have an instrument availability during release events of at least 80% except for the continuous monitoring of release points RP4, RP5, RP6, RP7 and RP10 as specified in **Table C1 – Mine Affected Water Release Points, Sources and Receiving Waters** which must have an instrument availability of at least 90%.
C39	**Enhanced Contaminant Release Events** The enhanced release of mine affected water in accordance with **Condition C35** may commence when the receiving water flow criteria for commencement of a release as specified in **Table C9 – Enhanced Contaminant Release Limits** is met, and must not exceed the release limits stated in **Table C9 – Enhanced Contaminant Release Limits** when measured at the monitoring points RP4, RP5, RP6, RP7 and RP10 as specified in **Table C1 – Mine Affected Water Release Points, Sources and Receiving Waters**.

Table C9 – Enhanced Contaminant Release Limits

Quality Characteristic	Maximum Release rate (for all combined RP flows)	Receiving Water Flow Criteria for Commencement of Release	Enhanced Release Limit	Monitoring Frequency
EC (µS/cm)	2.5m^3/s	Flow at Isaac at Deverill (Gauging Station #130410A)* >1.0 m^3/s	8,000	Continuous (minimum hourly)
pH (pH Units)			6.5 – 9.0	
Sulfate (mg/L)			1,689[1]	Daily during release (first sample within two hours of commencement of release)
Turbidity (NTU)			NA[2]	
Suspended Solids (mg/L)			1,500	

[1]Sulfate trigger determined from site specific mine water storage data of 8,000µS/cm EC using EC:Sulfate ratio.

[2]Limit for suspended solids can be omitted if turbidity limit is included. Limit for turbidity not required if suspended solids limit is included. Both indicators should be measured in all cases.

**Gauging station operated by Department of Local Government, Water and Volunteers.*

C40	The enhanced release of mine affected water to waters in accordance with condition **C35** must cease when the limit stated in **Table C10 – Enhanced Release - Receiving Water Cease Release Limit at Downstream Points** is exceeded when measured at MP4 as specified in **Table C6 – Receiving Water Upstream Background Sites and Downstream Monitoring Points.**

Table C10 – Enhanced Release - Receiving Water Cease Release Limit at Downstream Points

Contaminant Limit EC (µS/cm) Phillips Creek	Monitoring Frequency
2,000	Real-time monitoring of pH, EC, and flow at MP4 during active release to Phillips Creek. At other sites where real-time monitoring is not available daily grab sampling during release as soon as possible after commencement of active release, when safe access permits (during daylight hours only).

C41	**Enhanced Release - Notification of release event exceedance** If the limits defined in **Table C9 – Enhanced Contaminated Release Limits** are exceeded, the holder of the environmental authority must: (a) Notify the administering authority via WaTERS within **twenty-four (24) hours** of receiving the results; and (b) Provide a report within **twenty-eight (28) days** in accordance with condition **C18**.
C42	**Enhanced Release - Receiving environment monitoring and contaminant trigger levels** The quality of the receiving waters must be monitored at the locations specified in **Table C6 – Receiving Water Upstream Background Sites and Downstream Monitoring Points** for each quality characteristic and at the monitoring frequency stated in **Table C8 – Enhanced Receiving Waters Containment Trigger Levels**.
C43	**Enhanced Release** If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in **Table C8 – Enhanced Receiving Waters Contaminant Trigger Levels** during a release event, the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and: (a) Where the downstream result is the same or a lower value than the upstream value for the quality characteristic, then no action is to be taken; or (b) Where the downstream results exceed the upstream results, complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining: (i) Details of the investigations carried out; and (ii) Actions taken to prevent environmental harm. *Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with **C43 (b)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.*
C44	**Enhanced Release** If an exceedance in accordance with **Condition C43 (b)** is identified, the holder of the authority must notify the administering authority within **fourteen (14) days** of receiving the result.

C45	**Enhanced Release notification – potentially affected stakeholders** The environmental authority holder must notify all potentially affected stakeholders on commencement (within **two (2) hours** or another time frame as agreed to in writing with the relevant potentially affected stakeholder) of releasing mine affected water under condition **C35** in accordance with conditions **C36** to **C48** to the receiving environment. Notification must be in the form agreed to by the potentially affected stakeholder. Notification must include the following information unless otherwise agreed to by the potentially affected stakeholder: (a) Release commencement date/time; (b) Release location (release point/s); (c) Release rate; (d) Receiving waters for the release; (e) Receiving water flow rate; (f) Water quality of the release including salinity and pH; and (g) Estimated duration of the release.

C46	**Enhanced Contaminant Release – Annual Reporting** The environmental authority holder must provide the administering authority an annual independent assessment of the effectiveness of the on-site water management practices, to be submitted by **31 August each year**. This assessment must be undertaken by an appropriately qualified person that is independent of the environmental authority holder and must demonstrate the continued effectiveness of on-site water management to the extent that is practicable including: (a) Control of mine-affected water generation: (i) Minimisation of disturbance within rehabilitated or undisturbed areas; (ii) Minimisation of raw water imports for mining processes; (iii) Prioritised re-use of mine-affected water where practicable, particularly in high water usage processes such as coal beneficiation; and (iv) Effective irrigation, evaporation and re-use of treated sewage effluent to prevent it from entering mine-affected water storages. (b) Separation of mine-affected and non-mine-affected catchments on site: (i) Mine-affected water catchments are being effectively reduced by the environmental authority holder's implemented rehabilitation program; (ii) Mine design should allow for runoff from successfully rehabilitated disturbed areas to be shed from site without being retained in the mine-affected water system; and (iii) Rehabilitation completion criteria should include water quality limits to define successfully rehabilitated (i.e. non mine-affected) catchments. For example, water quality is an indicator that an area has been successfully rehabilitated and is no longer generating mine affected water. (c) Details of any progressive rehabilitation that demonstrates mine-affected water catchments are being effectively reduced by the environmental authority holder's implemented rehabilitation program.
C47	**Enhanced Release** If the administering authority determines that the annual assessment report does not demonstrate the continued effectiveness of the on-site water management practices in accordance with condition **C46**, the administering authority will: (a) Revoke the enhanced contaminant release conditions under conditions **C35** to **C48**; and (b) Notify the EA holder in writing within **ten (10) business days** of making the decision. *Note: This does not exclude other enforcement actions under the Department of the Environment, Tourism, Science and Innovation Enforcement Guidelines.*

C48	If, subject to condition **C47** the enhanced contaminant release conditions are revoked, then the contaminant release limit for electrical conductivity and sulfate will revert to the pre-existing limits as detailed in **Table C2 – Mine Affected Water release limits**.

Schedule D: Groundwater	
Condition number	**Condition**
D1	The holder of this environmental authority must not release contaminants, directly or indirectly, to groundwater.
D2	**Assessment Criteria for Compliance Bores** The assessment criteria for compliance bores specified in **Table D1 – Groundwater Monitoring Locations and Frequency** includes: (a) A trigger event is defined as a single exceedance of the criteria defined in **Table D2 – Groundwater Quality Triggers and Limits**; and (b) A limit exceedance is defined as **three (3)** consecutive exceedances of the criteria specified in **Table D2 – Groundwater Quality Triggers and Limits**. *Note – The criteria in Table D2: Groundwater Quality Triggers and Limits for 'Meadowbrook' bores apply after Meadowbrook mining activities have commenced.*
D3	**Groundwater quality monitoring** Groundwater quality of compliance and reference/interpretation bores must be monitored at the frequencies defined in **Table D1 – Groundwater Monitoring Locations and Frequency** and for quality characteristic identified in **Table D2 – Groundwater Quality Triggers and Limits**. Locations of monitoring bores are provided through **Attachment 4: Groundwater Bore Monitoring Locations (Lake Vermont Coal Mine)** and **Attachment 5: Groundwater Bore Monitoring Locations (Meadowbrook Project).**

D4	**Groundwater Quality Trigger Review (Lake Vermont Mine)** (a) By **3 months of the EA taking effect,** the holder of this environmental authority must complete a review of all 'Lake Vermont' quality limits specified in **Table D2: Groundwater Quality Triggers and Limits.** Should this review identify any existing triggers are unsuitable, an environmental authority amendment application must be submitted to update these triggers**.** **Groundwater Monitoring Program and Triggers (Meadowbrook)** (b) Within 24 months of the effective date of this environmental authority and prior to the commencement of longwall mining operations, the holder must complete a review in relation to the 'Meadowbrook' bores of the following: (i) **Table D1 – Groundwater Monitoring Locations and Frequency;** (ii) **Table D2 – Groundwater Quality Triggers and Limits;** (iii) **Table D3 – Groundwater Level Monitoring;** and (iv) **Table D4 – Meadowbrook Groundwater Level Monitoring.** Should this review identify any necessary improvements to the monitoring program or triggers, an environmental authority amendment application must be submitted to update the monitoring program or triggers. *Note – The holder should, where relevant, ensure consistency with the Meadowbrook Groundwater Dependent Ecosystem Monitoring and Management Program required in accordance with condition **D22**.*
D5	**Groundwater standing water level (SWL) monitoring** Groundwater SWL must be monitored at the locations and frequencies defined in **Table D1 – Groundwater Monitoring Locations and Frequency** and depicted in **Attachment 4: Groundwater Bore Monitoring Locations (Lake Vermont Coal Mine)** and **Attachment 5: Groundwater Monitoring Locations (Meadowbrook Project)**.

Table D1 – Groundwater Monitoring Locations and Frequency

Monitoring Bore[1]	Aquifer Groundwater unit	Latitude northing (GDA2020)	Longitude easting (GDA2020)	Surface RL (mAHD)[3]	Monitoring frequency
Lake Vermont Reference bores – for interpretational purposes only					
1238_MB1	Tertiary	-22.393137	148.464726	165.52	Quarterly
1238_MB2	Vermont Seam (Permian Rangal Coal measures)				Quarterly
2372-MB1	Tertiary	-22.363937	148.433806	166.91	Quarterly
2372-MB2	Rewan Group				Quarterly
2372-MB3	Vermont Seam (Permian Rangal Coal measures)				Quarterly
2393-MB1	Tertiary	-22.390857	148.416386	173.24	Quarterly
2393-MB2	Leichhardt Seam (Permian Rangal Coal measures)				Quarterly
2393-MB3	Vermont Lower Seam (Permian Rangal Coal measures)				Quarterly
2394-MB1	Tertiary	-22.391657	148.408676	173.96	Quarterly
2394-MB2	Rewan Group				Quarterly
West_MB1	Tertiary	-22.419217	148.389256	184.00	Quarterly
West_MB2	Permian Rangal Coal Measures				Quarterly
Meadowbrook Interpretation bores – for interpretational purposes only					
W2_MB1	Tertiary sediments	-22.315579	148.334818	187.92	Quarterly
W2_MB2	Girah 1 Seam	-22.315579	148.334837	187.93	Quarterly
W3_MB1	Quaternary alluvium	-22.333545	148.365106	176.80	Quarterly
W4_MB1	Quaternary alluvium	-22.340054	148.342857	179.00	Quarterly
W6_MB1	Permian overburden	-22.347701	148.338910	179.85	Quarterly
W6_MB2	Girah 1 Seam	-22.347692	148.338939	179.95	Quarterly
W7_MB1	Permian overburden	-22.363501	148.336401	180.69	Quarterly
W8_MB1	Girah 1 Seam	-22.386177	148.354313	177.67	Quarterly
W9_MB1	Tertiary sediments	-22.381536	148.370264	177.46	Quarterly
W10_MB1	Rewan Group	-22.380178	148.379147	177.00	Quarterly
W10_MB2	Vermont Upper Seam	-22.380178	148.379147	177.00	Quarterly
W13_MB1	Vermont Lower Seam	-22.319662	148.412646	166.80	Quarterly
W13_MB2	Girah 1 Seam	-22.319662	148.412626	166.80	Quarterly
W14_MB2	Permian Coal Seam	-22.341446	148.412807	167.80	Quarterly
W15_MB1	Tertiary sediments	-22.350265	148.448172	163.50	Quarterly
W15_MB2	Vermont Upper Seam	-22.350265	148.448172	163.50	Quarterly
W15_MB3	Vermont Lower Seam	-22.350265	148.448172	163.50	Quarterly
Lake Vermont Water Quality Compliance Bores					
2371W-MB1	Tertiary Sediments	-22.400977	148.391606	178.92	Quarterly
2375-MB2	Vermont Seam (Permian Rangal Coal measures)	-22.383237	148.439106	168.36	Quarterly
2226-MB2	Rewan Group	-22.400947	148.391586	178.84	Quarterly
2226-MB3	Leichhardt Seam (Permian Rangal Coal measures)				Quarterly

2218-MB2	Rewan Group	-22.393497	148.414796	173.29	Quarterly
2218-MB3	Leichhardt Seam (Permian Rangal Coal measures)	-22.393333	148.414722	173.19	Quarterly
Meadowbrook Water Quality Compliance Bores					
W1_MB1	Tertiary sediments	-22.316249	148.340125	187.09	Quarterly
W1_MB2	Leichhardt Lower Seam	-22.316258	148.340144	187.06	Quarterly
W1_MB3	Vermont Seam	-22.316258	148.340173	187.18	Quarterly
W3_MB2	Tertiary sediments	-22.333546	148.365086	176.20	Quarterly
W4_MB2	Permian overburden	-22.340054	148.342828	179.25	Quarterly
W5_MB1	Rewan Group	-22.348274	148.345023	181.15	Quarterly
W5_MB2	Leichhardt Lower Seam	-22.348301	148.345004	181.16	Quarterly
W5_MB3	Vermont Seam	-22.348328	148.344995	181.14	Quarterly
W9_MB2	Vermont Upper Seam	-22.381518	148.370264	177.42	Quarterly
W9_MB3	Vermont Lower Seam	-22.381500	148.370254	177.42	Quarterly
W10_MB3	Vermont Lower Seam	-22.380160	148.379147	177.00	Quarterly
W11_MB1	Rewan Group	-22.374577	148.399215	174.42	Quarterly
W11_MB2	Leichhardt Seam	-22.374568	148.399234	174.27	Quarterly
W12_MB1	Tertiary sediments	-22.326721	148.392203	166.80	Quarterly
W14_MB1	Tertiary sediments	-22.341446	148.412788	166.80	Quarterly
Lake Vermont Water Level Monitoring Bores[2]					
2226-VWP	Rewan Group, Permian coal measures	-22.400940	148.391580	178.84	Quarterly
2183-VWP	Permian Rangal Coal Measures	-22.415240	148.400840	185.16	Quarterly
2218-VWP	Rewan Group, Permian Rangal Coal Measures	-22.393490	148.414790	173.29	Quarterly
2372-VWP	Permian Rangal Coal Measures	-22.363930	148.433800	166.91	Quarterly
2375W-VWP	Permian Rangal Coal Measures	-22.383230	148.439100	168.36	Quarterly
1235C-VWP	Permian Rangal Coal Measures	-22.399430	148.456350	170.81	Quarterly
2369W-MB1	Tertiary Clay/Sand	-22.393500	148.414770	173.4	Quarterly
2370W-MB1	Tertiary Sand/Sandy Clay	-22.383110	148.439070	168.30	Quarterly
Meadowbrook Proposed Additional Interpretation Bores[4]					
W16_MB1	Quaternary alluvium	-22.325224	148.444573	162	Quarterly
W16_MB2	Tertiary sediments	-22.325224	148.444573	162	Quarterly
W17_MB1	Quaternary alluvium	-22.328571	148.450064	161.5	Quarterly
W17_MB2	Tertiary sediments	-22.328571	148.450064	161.5	Quarterly

*[1]If any of the monitoring bores in **Table D1 – Groundwater Monitoring Locations and Frequency** become unfit for purpose as a result of advancing mining activities, the environmental authority holder must submit proposed replacement bores to the administering authority for approval and inclusion in **Table D1 – Groundwater Monitoring Locations and Frequency.***

[2] Groundwater level monitoring only.

[3] As measured from the bore collar relative level (Collar RL) in mAHD

[4]*The need for these future potential interpretation bores (W16 and W17) is to be determined once additional GDE baseline monitoring data is available (as per condition D22); and following consultation with the administering authority by* ***31 December 2027****.*

Table D2 – Groundwater Quality Triggers and Limits[1]

Project area	Parameter	Bore	Groundwater unit – Triggers and Limits		
			Tertiary	Rewan	Permian
Lake Vermont	pH (field - pH units)	All	5.13 – 7.24	5.13 – 7.24	5.1 – 7.24
	Electrical Conductivity (field - µS/cm)	All	40,712	30,944	30,581
	Sulfate (mg/L)	2371W-MB1	4,180	-	-
		All other bores	1,942	1,270	756
Meadowbrook	pH (field - pH units)	All	5.8 – 7.50	6.4 – 7.50	6.2 – 8.66
	Electrical Conductivity (field - µS/cm)	W14-MB1	1,205	-	-
		All other bores	30,422	26000	41,567
	Sulfate (mg/L)	W14-MB1	163	-	-
		W5-MB1	-	1,696	-
		W1-MB1	-	165	-
		W1-MB2	-	-	20
		W1-MB3	-	-	20
		All other bores	1,250	-	1,760
Metals/metalloids (mg/L) (dissolved, by ICP-MS)					
Lake Vermont	Aluminium	All	0.055	0.055	0.055
	Chromium		0.006	0.001	0.001
	Cobalt		0.016	0.044	0.007
	Copper		0.013	0.005	0.055
	Manganese		1.9	1.9	1.9
	Molybdenum		0.034	0.034	0.034
	Nickel		0.02	0.022	0.011
	Selenium		0.01	0.01	0.01
	Zinc		0.08	0.04	0.017
Meadowbrook	Aluminium		0.055	0.055	0.055
	Chromium		0.005	0.005	0.006
	Cobalt		0.008	0.005	0.024
	Copper		0.008	0.008	0.153
	Manganese		1.9	1.9	1.9
	Molybdenum		0.034	0.047	0.070
	Nickel		0.223	0.410	0.075
	Selenium		0.01	0.01	0.01
	Zinc		0.107	0.066	0.13
Total Petroleum Hydrocarbons (µg/L)[2]					
Lake Vermont and Meadowbrook	$C_6 – C_9$	All	20	20	20
	$C_{10} – C_{36}$		100	100	100
Major Ions (mg/L)					
Lake Vermont and Meadowbrook	Bicarbonate	All	For interpretational purposes only		
	Calcium				
	Chloride				
	Magnesium				
	Potassium				
	Sodium				

[1]Trigger levels and compliance limits are applicable to compliance bores.
[2] For aquatic ecosystem protection, based on LOR for GCMS. LOR – typical reporting for method stated. ICPMS/ GCMS – analytical method required to achieve LOR. GCMS - Gas chromatography–mass spectrometry.

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Table D3 – Groundwater Level Monitoring

Monitoring location	Aquifer[2]	Water Level Trigger[1]
2226-VWP	Rewan Group	5m/year
2183-VWP	Permian Coal Measures	5m/year
2218-VWP	Rewan Group	5m/year
2372R-VWP	Permian Coal Measures	5m/year
2375W-VWP	Permian Coal Measures	5m/year
1235C-VWP	Permian Coal Measures	5m/year
2369W-MB1	Tertiary Clay/Sand	2m/year
2370W-MB1	Tertiary Clay/Sandy Clay	2m/year

[1] Water level triggers have been derived from Section 362 of the Water Act 2000.
*[2] Monitoring required under **Table D3 – Groundwater level monitoring** is only required within aquifers that may be potentially affected from mining activities carried out within ML70528.*

Table D4 – Meadowbrook Groundwater Level Monitoring

Monitoring location	Groundwater unit	Water Level Trigger (mAHD)
W1_MB1	Tertiary sediments	158.4
W1_MB2	Leichhardt Lower Seam	158.54
W1_MB3	Vermont Seam	159.07
W3_MB2	Tertiary sediments	142.1
W4_MB2	Permian overburden	149.47
W5_MB1	Rewan Group	151.87
W5_MB2	Leichhardt Lower Seam	146.44
W5_MB3	Vermont Seam	155.52
W9_MB2	Vermont Upper Seam	96.32
W9_MB3	Vermont Lower Seam	98.01
W10_MB3	Vermont Lower Seam	130.73
W11_MB1	Rewan Group	115.24
W11_MB2	Leichhardt Seam	13.99
W12_MB1	Tertiary sediments	138.35
W14_MB1	Tertiary sediments	145.84

D6	**Groundwater quality exceedance** Results of monitoring of groundwater from compliance bores identified in **Table D1 – Groundwater Monitoring Locations and Frequency**, must not exceed any of the limits defined in **Table D2 – Groundwater Quality Triggers and Limits** on **three (3)** consecutive occasions.
D7	If the limits specified in **Table D2 – Groundwater Quality Triggers and Limits** are exceeded at the compliance bores on **three (3)** consecutive occasions, the holder of the environmental authority must notify the administering authority via WaTERS within **twenty-four (24) hours** of receiving the results.
D8	**Groundwater SWL exceedance** The SWL in monitoring results from groundwater bores identified in **Table D1 – Groundwater Monitoring Locations and Frequency** must be reviewed against the previous **twelve (12) months** of SWL monitoring data and should consider predicted maximum groundwater level drawdown for approved operations.
D9	**Trigger Investigation** If monitoring results from water quality compliance bores or water level bores specified in **Table D1 – Groundwater Monitoring Locations and Frequency**, exceed any of the limits specified in **Table D2 – Groundwater Quality Triggers and Limits** or **Table D3 – Groundwater Level Monitoring** or **Table D4: Meadowbrook Groundwater Level Monitoring,** the holder of the environmental authority must complete an investigation within **fourteen (14) days** of detection to determine if the exceedance is a result of: (a) mining activities authorised under this environmental authority; (b) natural variation; or (c) neighbouring land use resulting in groundwater impacts.
D10	The holder of this environmental authority must notify the administering authority via WaTERS and provide a report of the investigation to the administering authority via WaTERS within **twenty-eight (28) days** of completion of the investigation under condition **D9**.
D11	If the investigation under condition **D9** determined that the exceedance was the result of mining authorised under this environmental authority, then investigations must be undertaken by the holder of this environmental authority to establish whether environmental harm has occurred or may occur.
D12	If an investigation undertaken in accordance with condition **D11** determines that environmental harm has occurred or may occur, the holder of this environmental authority must: (a) implement immediate measures to reduce the potential for environmental harm; and (b) develop long-term mitigation measures to address any existing groundwater contamination and prevent recurrence of groundwater contamination.

D13	The holder of this environmental authority must provide details of the measures implemented to reduce the potential for environmental harm as well as the long-term mitigation measures to the administering authority within **twenty-eight (28) days** after completing the investigation under condition **D11**.
D14	**Groundwater Model (Meadowbrook)** The groundwater model prepared for the Meadowbrook Project (on ML 700080) must be reviewed and updated by an appropriately qualified person prior to the commencement of longwall mining. The groundwater model must then be reviewed every 5 years thereafter.
D15	The groundwater model review required by condition **D14** must: (a) include all hydrogeological units potentially impacted by the activities authorised under this environmental authority; (b) be undertaken in accordance with the most recent version of the 'Australian Groundwater Modelling Guidelines' (2012); (c) be validated and recalibrated with all recent monitoring data; (d) update or recalibrate the model if the model validation process deems it necessary to meet the objectives of the model; and (e) be documented and recorded.
D16	If the outcomes of the updated groundwater model required by condition **D14** differ from the predictions and associated impacts from the current groundwater model, the environmental authority holder must also submit a report to the administering authority within **28 days** of completion of the review under condition **D14** that details the impacts to environmental values that will, or are likely to, occur as a result of the updates to the groundwater model.
D17	**Annual Groundwater Monitoring Report (AGMR)** Within **one (1) year** after commencing mining activities on ML700080 (Meadowbrook Project) an AGMR must be completed each year.

D18	The AGMR required by condition **D17** must include: (a) a review of all the groundwater quality and SWL data of all groundwater bores listed within **Table D1 – Groundwater Monitoring Locations and Frequency**; (b) an assessment of groundwater quality and SWL trends for all data from all groundwater bores listed in **Table D1 – Groundwater Monitoring Locations and Frequency**; (c) details of any review undertaken of the groundwater conceptual model; (d) an assessment of any impacts on groundwater quality and level due to the mining activities; (e) comparison with receiving environment surface water quality monitoring results to determine any interaction or impact from groundwater on surface water; (f) An assessment of the bore monitoring network being fit for purpose as the mine progresses; (g) assessment of the appropriateness of the groundwater level triggers listed in **Table D3 – Groundwater Level Monitoring** and **Table D4: Meadowbrook Groundwater Level Monitoring** with any recommendations addressed and updated to the satisfaction of the administering authority; (h) when a groundwater model review has been completed in accordance with conditions **D14** to condition **D16**, findings should be reflected in the AGMR.
D19	**Groundwater monitoring bores** The construction, maintenance and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring.
D20	A bore report must be kept for each monitoring bore installed after the date of approval of this environmental authorit**y** which includes: (a) a unique identification reference number and geographic coordinate location; and (b) construction information including but not limited to the depth of bore, depth and length of casing, depth and length of screening and bore sealing details; and (c) stratigraphy and target hydrogeological unit of the bore; and (d) depth at which groundwater was intercepted and the final standing water level (SWL) after bore development.
D21	**Impacts to Groundwater dependent ecosystems – ML700080 (Meadowbrook Project)** The activities authorised under this environmental authority must not cause harm to any groundwater dependent ecosystems except as specified in **Table D5 – Meadowbrook Groundwater Dependent Ecosystems** and illustrated in **Attachment 13: Authorised areas of residual subsidence ponding and authorised impacts to GDE's.**

D22	**Meadowbrook Groundwater Dependent Ecosystem Monitoring and Management Plan** A Groundwater Dependent Ecosystem Monitoring and Management Plan (GDEMMP) must be developed and implemented prior to commencement of longwall mining and/or open cut activities on ML700080 (Meadowbrook), which must: a) provide for **two (2) years** of GDE baseline monitoring to develop appropriate triggers and assessment parameters; b) undertake baseline monitoring consisting of four events covering two (2) wet seasons and two (2) dry seasons; c) specify surface water quality, sediment quality, and macroinvertebrate trigger thresholds; d) detail how changes to surface water quality, sediment quality, macroinvertebrates, and the receiving environment, as a result of the action, would be detected, assessed, and if harm to the environment occurs, remediated; e) specify subsidence trigger thresholds and management measures, to detect and mitigate subsidence to prevent harm to protected matters, that will be implemented if approved subsidence trigger thresholds are exceeded; f) be informed by the development of a GDE habitat quality monitoring program for each of the 14 proposed GDE monitoring areas; g) monitor and report on the condition of potential GDE areas including those in any proposed offset area; h) the approval holder must implement effective mitigation measures where monitoring triggers have been breached due to hydrological changes (water quality or quantity impacts) or groundwater drawdown impacts from the project; i) provide an assessment of the impact, including any significant residual impacts (e.g. habitat loss), to GDEs including Brigalow TEC, Poplar Box TEC, and to koala and greater glider that are dependent on GDE areas within riparian corridors; j) conduct annual biodiversity hotspot surveys in conjunction with a monthly water quality monitoring program to monitor potential changes/ impacts to the stygofauna community over the life of the mine until after the mine closure and the rehabilitation period; and k) a program for monitoring and **two (2) yearly** review of the effectiveness of the GDEMMP.

Table D5 – Meadowbrook Groundwater Dependent Ecosystems

GDE description	Catchment	Location (decimal degrees, GDA2020)
TYPE 1: GDE associated with the narrow belts of alluvium that are associated with larger incised drainage lines of Boomerang and Phillips Creek, extending eastward to the Isaac River.	Boomerang Creek; and Phillips Creek catchments.	*Refer Attachment 6 – Identified GDE locations (Meadowbrook)*
TYPE 2: GDE systems which are supported by a lens of fresh groundwater that lies at depth below the surface wetland systems, located near the junction of Boomerang & Ripstone Creeks.	Ripstone Creek catchment.	*Refer Attachment 6 – Identified GDE locations (Meadowbrook)*

Schedule E: Sewage Treatment	
Condition number	**Condition**
E1	The only contaminant permitted to be released to land is treated sewage effluent in compliance with the release limits and monitoring frequency stated in **Table E1 – Contaminant Release Limits to Land**.

Table E1 – Contaminant Release Limits to Land

Quality Characteristics	Release Limit	Units	Limit Type	Monitoring Frequency
5 day Biochemical oxygen demands (BOD5)	20	mg/L	80th percentile	Monthly (Meadowbrook) Quarterly (Lake Vermont)
pH	6.5 – 8.5	pH units	Range	
Free Chlorine Residual	1	mg/L	Maximum	
Thermotolerant Coliforms	1000	CFU/100ml	Maximum	
Total Phosphorus	20	mg/L	Maximum	
Total Nitrogen	60	mg/L	Maximum	

E2	Treated sewage effluent may only be released to land in accordance with the conditions of this approval at the following locations: (a) within areas approved for treated effluent disposal; and (b) other land for the purpose of dust suppression and/or fire-fighting.
E3	The application of treated effluent to land must be carried out in a manner such that: (a) vegetation is not damaged; (b) there is no surface ponding of treated effluent; and (c) there is no run-off of effluent.
E4	If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present, and care should be taken to avoid consuming or otherwise coming into unprotected contact with effluent.
E5	The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released.
E6	When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measure must be taken to store/lawfully dispose of effluent.
E7	Treated sewage effluent must only be supplied to another person or organisation that has a written plan detailing how the user of the treated sewage effluent will comply with their general environmental duty under section 319 of the *Environmental Protection Act 1994* whilst using the treated sewage effluent. *Note: the supply of treated wastewater for re-use is regulated under the Water Supply (Safety and Reliability) Act 2008.*
E8	**Meadowbrook Site-Based Irrigation Management Plan** A Site-Based Irrigation Management Plan for activities on ML700080 (Meadowbrook Project) must be developed and implemented to manage risks associated with effluent irrigation, prior to effluent irrigation commencing on ML700080.

Schedule F: Acoustic	
Condition number	**Condition**
F1	The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in **Table F1 – Noise Limits** to be exceeded at a sensitive place or commercial place.

Table F1 – Noise Limits

Sensitive Place						
Noise level dB(A) measured as:	**Monday to Saturday**			**Sundays and Public Holidays**		
	7am to 6pm	**6pm to 10pm**	**10pm to 7am**	**9am to 6pm**	**6pm to 10pm**	**10pm to 9am**
$L_{Aeq, adj, 15 mins}$	40	40	35	40	40	35
$L_{A1, adj, 15 mins}$	45	45	40	45	45	40
Commercial Place						
Noise level dB(A) measured as:	**Monday to Saturday**			**Sundays and Public Holidays**		
	7am to 6pm	**6pm to 10pm**	**10pm to 7am**	**9am to 6pm**	**6pm to 10pm**	**10pm to 9am**
$L_{Aeq, adj, 15 mins}$	45	45	40	45	45	40

Notes: 1. In the event that measured bg (LA90, adj, 15mins) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level.
2. bg = background noise level (LA90, adj, 15mins) measured over 3-5 days at the nearest sensitive receptor.
3. If the project is unable to meet the noise limits as calculated above alternative limits may be calculated using the processes outlined in the "Planning for Noise Control" guideline.

F2	**Airblast Overpressure Nuisance** The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in **Table F2 – Blasting Noise Limits** to be exceeded at a sensitive place or commercial place.

Table F2 – Blasting Noise Limits

Blasting Noise Limits	Sensitive or Commercial Blasting Noise Limits	
	7am to 6pm	**6pm to 7am**
Airblast overpressure	115dB (Linear) Peak for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120dB (Linear) Peak at any time	No blasting to occur.
Ground vibration peak particle velocity (PPV)	5mm/second PPV of nine (9) out of ten (10) consecutive blasts and not greater than 10mm/second PPV at any time	No blasting to occur.

F3	**Monitoring and Reporting** Noise monitoring and recording must include the following descriptor characteristics and matters: (a) $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins); (b) background noise LA_{90}; (c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels; (d) atmospheric conditions including temperature, relative humidity and wind speed and directions; (e) effects due to any extraneous factors such as traffic noise; (f) location, date and time of monitoring; and (g) if the complaint concerns low frequency noise, Max $_{LpLIN,T}$ and one third octave band measurements in dB(LIN) for centre frequencies in the 10-200Hz range.
F4	The holder of this environmental authority must develop and implement a blast monitoring program to monitor compliance with **Table F2 – Blasting Noise Limits**.

Schedule G – Land	
Condition number	**Condition**
G1	**Rehabilitation** All areas significantly disturbed by mining activities must be rehabilitated in accordance with the Progressive Rehabilitation and Closure Plan to achieve the final completion criteria. Note: section 202E of the EP Act states that if there is an inconsistency between an environmental authority and a PRCP schedule, the environmental authority prevails to the extent of the inconsistency.
G2	Land disturbed by mining on ML700080 (Meadowbrook project) must be rehabilitated to a stable landform with self-sustaining final land use in accordance with **Table G2 – Post-mining Land Use for disturbance areas on ML700080 (Meadowbrook)**.
G3	**Surrender** The holder must meet the conditions and the rehabilitation milestones under the PRCP schedule prior to the surrender of the environmental authority.
G4	**Biodiversity Offsets** Impacts to prescribed environmental matters are not authorised unless the impacts are authorised in conditions **G5** and **G6**.
G5	Notwithstanding condition **G4**, impacts to prescribed environmental matters, are only authorised to occur if for the prescribed environmental matters specified in **Table G1 – Authorised Impacts to Prescribed Environmental Matters**, the impacts do not exceed the maximum extent of impact specified for that prescribed environmental matter
G6	An environmental offset must be delivered for each impact specified in **Table G1 – Authorised Impacts to Prescribed Environmental Matters** as requiring an environmental offset.
G7	An environmental offset made in accordance with the *Environmental Offsets Act 2014* and Queensland Environmental Offsets Policy, as amended from time to time, must be undertaken for the maximum extent of impact as a result of activities on ML700080 (Meadowbrook project) to each prescribed environmental matter authorised in **Table G1: Authorised Impacts to Prescribed Environmental Matters**, unless a lesser extent of the impact has been approved in accordance with condition **G8**.
G8	The significant residual impacts to a prescribed environmental matter authorised in condition **G4** (and set out in **Table G1: Authorised Impacts to Prescribed Environmental Matters**), for which an environmental offset is required by condition **G6** may be carried out in stages. An environmental offset can be delivered for each stage of the impacts to prescribed environmental matters.

G9	Prior to the commencement of any impacts to a prescribed environmental matter for which an environmental offset is required by condition **G5**, or stage as authorised by condition **G8**, an analysis of the anticipated maximum extent of impact to each prescribed environmental matter must be provided to the administering authority: (a) for the forthcoming stage – the estimated significant residual impacts to each prescribed environmental matter; and (b) for the previous stage, if applicable – the actual significant residual impacts to each prescribed environmental matter, to date.
G10	The analysis of impacts required by condition **G9** must be approved by the administering authority before the notice of election, or the notice of election for the forthcoming stage, is given to the administering authority.
G11	The notice of election, or the notice of election for the forthcoming stage, must be provided to the administering authority no less than **three (3) months** before the proposed commencement of impact to the prescribed environmental matters, or the proposed commencement of that stage, unless a lesser timeframe has been agreed to by the administering authority.
G12	Within **six (6) months** from the completion of the final stage of the project, a report completed by an appropriately qualified person, that includes the following matters must be provided to the administering authority: (a) an analysis of the actual impacts on prescribed environmental matters resulting from the final stage; and (b) if applicable, a notice of election to address any outstanding offset debits for the authorised impacts.

Table G1 – Authorised Impacts to Prescribed Environmental Matters

Matters of state environmental significance		Maximum extent of impact	Significant Impact	Meadowbrook Project stage impact areas				Environmental offset required
				S1	S2	S3	S4	
MSES - Regulated Vegetation								
Endangered RE	RE11.3.1	12.1ha in Meadowbrook Project (7.3 ha of which is Brigalow TEC under EPBC Act) [2]	Yes	0	1.2	0	3.6	Yes (partly co-located with MNES offsets)
	RE11.4.8	3.9ha in Meadowbrook Project (0.6ha of which is Brigalow TEC under EPBC Act) [2]	Yes	0	0	0	3.3	Yes (Fully co-located with MNES offsets)
Of Concern RE	RE11.3.2	62.7ha in Meadowbrook Project (48.8 of which is Poplar Box TEC under EPBC Act) [2]	Yes	0	0	13.9	0	Yes
	RE11.3.4	4.9ha in Meadowbrook Project[2]	Yes	0	0	4.9	0	Yes (Fully co-located with MNES offsets)
RE intersecting an area shown as a wetland on the vegetation management wetlands map	RE11.5.17	4.7ha in Meadowbrook Project[2]	Yes	0	0	4.7	0	Yes (partly co-located with MNES offsets)
REs occurring within the defined distance of defining banks of a vegetation management watercourse RE occurring within defined distance of defining banks of a relevant watercourse	RE11.3.1	8.0ha in Meadowbrook Project[2]	Yes	0.2	7.8	0	0	Yes
	RE 11.3.25	28.4ha in ML70528; and 6.0ha in Meadowbrook Project[2]	Yes	1.2	0	4.8	0	Yes
RE intersecting an area shown as a wetland on the	RE 11.3.27	3.9ha in ML70528; and 0.48ha in Meadowbrook Project	Yes	0.48	0	0	0	Yes

vegetation management wetlands map								
MSES - Protected Wildlife Habitat								
MNES[1] – Threatened Ecological Communities								
Brigalow TEC		7.9ha in Meadowbrook Project[3]	Yes	0.6	6.9	0.1	0.3	Yes
Poplar Box TEC		48.8ha in Meadowbrook Project[4]	Yes	4.4	0	44.4	0	Yes
MNES[1] – Protected Wildlife Habitat								
Vulnerable species	Squatter pigeon (*Geophaps scripta scripta*)	39.2ha in ML70528; and 29.2ha in Meadowbrook Project	Yes	19.9	0	0	9.3	Yes
Vulnerable species	Ornamental Snake (Denisonia maculata)	213.3ha in Meadowbrook Project[5]	Yes	43	4.6	0.3	165.4	Yes
Vulnerable species	Greater Glider (Petauroides Volans)	114.1ha in Meadowbrook Project[6]	Yes	18	0	89.1	7	Yes
Vulnerable species	Koala (Phascolarctos cinereus)	122.7ha in Meadowbrook Project[7]	Yes	18.3	8.2	89.1	7.1	Yes

[1] Offsets will be regulated under the EPBC Act approval conditions

[2] authorised impact extent provided in Attachment 7: MSES authorised significant impact areas

[3] authorised impact extent provided in Attachment 8: Poplar Box TEC authorised significant impact areas

[4] authorised impact extent provided in Attachment 9: Brigalow TEC authorised significant impact areas

[5] authorised impact extent provided in Attachment 10: Ornamental Snake authorised significant impact areas

[6] authorised impact extent provided in Attachment 11: Greater Glider authorised significant impact areas

[7] authorised impact extent provided in Attachment 12: Koala authorised significant impact areas

Table G2 – Post-mining Land Use for disturbance areas on ML700080 (Meadowbrook)

Mine Domain	Disturbance type/Mine feature	Description	Post mining land use
Infrastructure	**Mine infrastructure areas**	**Surface disturbance associated with mine infrastructure areas, including the MIA flood levee**	**Grazing pasture – Land Suitability class 3**
	Water management infrastructure	Dams and diversion drains (rehabilitated to pasture)	Grazing pasture – Land Suitability class 3
		Dams (retained for stock watering where a landowner retention agreement applies)	Water storage for stock watering
	Infrastructure corridor and access roads	Infrastructure corridor and access roads	Retained infrastructure (where a landowner retention agreement applies)
Open-cut mining	Open-cut disturbance areas	Open-cut disturbance areas, including backfilled pit, in-pit and out-of-pit waste rock emplacements and flood levee (slopes <15%)	Grazing pasture – Land Suitability class 3
Subsidence	Areas subject to subsidence	Areas subject to subsidence and some surface disturbance associated with gas drainage bores and access tracks – non-riparian areas	Grazing pasture – Land Suitability class 3
		Native vegetation on Boomerang Creek and One Mile Creek, and riparian zones subject to subsidence	Native ecosystem

G13	**Subsidence Management Plan** A Subsidence Management Plan must be developed and implemented prior to the commencement of underground longwall mining activities on ML700080. The Subsidence Management Plan must: (a) provide an overview of the existing environment of the proposed subsidence area; (b) provide a summary of the key impacts that may arise as a result of the proposed subsidence; (c) provide for the proper and effective monitoring and management of the actual and potential environmental impacts of the proposed subsidence; including but not limited to impacts to: i) landform conditions; ii) surface cracking; iii) erosion; iv) ponding; v) watercourse channel/geomorphic conditions; vi) ecology; vii) flow; viii) water quality of subsided creeks and receiving waters; ix) an assessment of the adequacy of any completed repair works or recommended actions from the previous monitoring period; and (d) provide for the development of management actions (e.g. repairs or rehabilitation works) and establish a process to monitor the completion of actions.
G14	**Annual subsidence monitoring inspection** An annual subsidence monitoring inspection must be undertaken (annually, within 12 months of underground longwall mining commencing on ML700080) to identify any areas of observable or measurable impact that might be associated with subsidence or associated surface disturbance.
G15	Annual subsidence monitoring inspections must continue until subsidence movement in the northern subsidence area of ML700080 is considered to have finalised.
G16	**Annual Subsidence Monitoring Report** An annual subsidence monitoring report must be prepared (annually, within **three (3) months** of the completion of the annual subsidence monitoring inspection of ML700080 to provide the results and analysis from each monitoring event(s) as well as detail any required repair/rehabilitation activities.

G17	**Subsidence Management Plan review** A review of the Subsidence Management Plan required under condition **G13** must be: (a) conducted every **four (4) years**, (b) documented in a report; and (c) updated based on the outcome of the review.
G18	**Residual subsidence ponding** Residual subsidence ponding, as a result of mining activities, is only permitted to occur in the indicative areas depicted in **Attachment 13 – Authorised areas of residual subsidence ponding and authorised impacts to GDEs**.
G19	**Meadowbrook open-cut disturbance** Prior to the commencement of open-cut mining activities on ML700080 (Meadowbrook Project), as depicted in **Attachment 2: Authorised Disturbance Footprint (Meadowbrook Project)**: (a) flood protection levees on ML700080 must be constructed and commissioned; and (b) the flood protection levee south of Philips Creek on ML70528 must be constructed and commissioned as per the following requirements: (i) approximately 7.8 kilometres in length; (c) flood protection levees in (a) and (b) must be: (i) designed to withstand 1 in 1000 Average Recurrence Interval (ARI) event(s); and (ii) in accordance with **Schedule I Regulated Structures** of this environmental authority.

Schedule H: Waste	
Condition number	**Condition**
H1	Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.
H2	Unless otherwise authorised by the conditions of this environmental authority, all waste generated in carrying out the activity must be lawfully reused, recycled, removed to a facility that can lawfully accept the waste, or disposed of on-site as part of an approved environmentally relevant activity.
H3	The holder of this environmental authority may burn vegetation cleared while carrying out the mining activity, provided the burning does not cause environmental harm at any sensitive place or commercial place.
H4	Scrap tyres must be stored and disposed of in accordance with the Operational Policy Disposal and storage of scrap tyres at mine sites (ESR/2016/2380) with tyre stockpiles to be less than 3m in height or 5m in height if stockpiled standing upright and less than 200 square metres in area.
H5	**Waste Management Plan** A Waste Management Plan must be: (a) developed and implemented from the commencement of activities on ML700080 and for the duration of mining activities; and (b) reviewed at regular intervals, not exceeding **two (2) years**.

H6	The Waste Management Plan required by condition **H5** must include: (a) a description of the activities that may generate waste; (b) waste management strategies including: (i) recording of the types and amounts of wastes generated by the mining activity; (ii) segregation of the wastes; (iii) storage of the wastes; (iv) transport of the wastes; (v) disposal of waste including leachate management; and (vi) monitoring and reporting matters concerning the waste; (c) the hazard characteristics of the wastes generated including disposal procedures for regulated wastes; (d) a program for reusing, recycling or disposing of all wastes; (e) how waste will be managed in accordance with the waste and resource management hierarchy, including a description of the types and amounts of waste that will be dealt with under each of the waste management practices in the waste management hierarchy (i.e., avoidance, reuse, recycling, energy recovery, disposal); (f) how the waste will be stored, handled and transferred in a proper and effective manner; (g) procedures for identifying and implementing opportunities to minimise the amount of waste generated, promote efficiency in the use of resources and improve the waste management practices employed; (h) procedures for dealing with accidents, spills, and other incidents that may impact on waste management; (i) details of any accredited management system employed, or planned to be employed, to manage waste; (j) how often the performance of the waste management practices will be assessed; (k) indicators or other criteria on which the performance of the waste management practices will be assessed; and (l) staff training and induction to the waste management program.

H7	**Tailings Disposal** Tailings must be managed in accordance with procedures contained within a Tailings Disposal Plan, which must be developed and implemented for all stages of the authorised mining activities. The Tailings Disposal Plan must include provisions for: (a) containment of tailings; (b) the management of seepage and leachates both during operations and the foreseeable future; (c) the control of fugitive emissions to air; (d) a program of progressive sampling and characterisation to identify acid producing potential and metal concentrations of tailings; (e) maintaining records of the relative locations of any other waste stored within the tailings; (f) rehabilitation strategy; and (g) monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of tailings, including the prevention and management of acid mine drainage, erosion minimisation and establishment of vegetation cover.
H8	**Toll washing reject disposal** Coal rejects from the toll washing authorised by condition **A14** are permitted to be disposed of at the licenced place subject to the requirements of condition **A18** and in accordance with the Tailings Disposal Plan required by condition **H7**.
H9	Prior to the commencement of toll washing, the holder is required to amend the Tailings Disposal Plan required by condition **H7** to include toll washing rejects.

Schedule I – Regulated Structures	
Condition number	**Condition**
I1	**Assessment of Consequence Category** The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the 'Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)' or its successor at the following times: (a) prior to the design and construction of the structure, if it is not an existing structure; or (b) prior to any change in its purpose or the nature of its stored contents.
I2	A consequence assessment report and certification must be prepared for any structure assessed and the report may include a consequence assessment for more than one structure.
I3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the most recent version of the 'Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)' or its successor.
I4	**Design and Construction of a Regulated Structure** **Conditions I5** to **I9** inclusive do not apply to existing structures. *Note: Construction of a dam includes modification of an existing dam – refer to the Definition schedule of this environmental authority.*
I5	All regulated structures must be designed by and constructed under the supervision of a suitably qualified and experienced person in accordance with the requirements of the most recent version of the 'Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)' or its successor. *Note: Certification of design and construction may be undertaken by different persons.*
I6	Construction of a regulated structure is prohibited unless: (a) the holder has submitted a consequence category assessment report and certification to the administering authority; and (b) certification for the design, design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this authority.
I7	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the most recent version of the 'Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)' or its successor and must be recorded in the Register of Regulated Structures.

I8	Regulated structures must: (a) be designed and constructed in accordance with and conform to the requirements of the most recent version of the 'Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)' or its successor; (b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: (i) floodwater from entering the regulated dam from any watercourse or drainage line; and (ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line. (c) for regulated dams that are dams associated with a 'failure to contain – seepage': have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.
I9	Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that: (a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure; and (b) construction of the regulated structure is in accordance with the design plan.
I10	**Operation of a Regulated Structure** Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority: (a) one electronic copy of the design plan and certification of the 'design plan' in accordance with **condition I6**, and (b) a set of 'as constructed' drawings and specifications, and (c) certification of those 'as constructed drawings and specifications' in accordance with **condition I9**, and (d) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the design storage allowance (DSA) volume across the system, a copy of the certified system design plan. (e) the requirements of this authority relating to the construction of the regulated structure have been meet; (f) the holder has entered the details required under this authority, into a Register of Regulated Dams; and (g) there is a current operational plan for the regulated structures.

I11	For existing structures that are regulated structures: (a) where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority within twelve (12) months of the commencement of this condition a copy of the certified system, design plan including that structure; and (b) there must be a current operational plan for the existing structures.
I12	Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.
I13	**Mandatory Reporting Level** **Conditions I14** to **I17** inclusive only apply to regulated structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
I14	The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.
I15	The holder must, as soon as practical and within **forty-eight (48) hours** of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
I16	The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.
I17	The holder must record any changes to the MRL in the Register of Regulated Structures.
I18	**Design Storage Allowance** The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to **1 July of each year**.
I19	By **1 November of each year**, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the DSA volume for the dam (or network of linked containment systems).
I20	The holder must, as soon as possible and within **forty-eight (48) hours** of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on **1 November of any year**, notify the administering authority.
I21	The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on **1 November of any year**, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.

I22	**Annual Inspection Report** Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
I23	At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include recommended actions to ensure the integrity of the regulated structure.
I24	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the most recent version of the 'Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)' or its successor.
I25	The holder must within **twenty (20) business days** of receipt of the annual inspection report, provide to the administering authority: (a) the recommendations section of the annual inspection report; and (b) if applicable, any actions being taken in response to those recommendations; and (c) if, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within **ten (10) business days** of receipt of the request.
I26	**Transfer Arrangements** The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.
I27	**Register of Regulated Structures** A Register of Regulated Structures must be established and maintained by the holder for each regulated dam.
I28	The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated dam is submitted to the administering authority.
I29	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with **conditions I10** and **I11** has been achieved.
I30	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
I31	All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.

I32	The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.
I33	**Transitional Arrangements (Lake Vermont Mine)** All existing structures that have not been assessed in accordance with either the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures or the former Manual for Assessing Hazard Categories and Hydraulic Performance of Dams must be assessed and certified in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635) by 20 February 2016.
I34	All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635) specified in **Table I1 – Transitional Requirements for Existing Structures**, depending on the consequence category for each existing structure assessed in the most recent previous certification for that structure.
I35	**Table I1 – Transitional Requirements for Existing Structures** ceases to apply for a structure once any of the following events has occurred: (a) it has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; or (b) it has been decommissioned; or (c) it has been certified as no longer being assessed as a regulated structure.
I36	Certification of the transitional assessment required by **conditions I33** and **I34** (as applicable) must be provided to the administering authority **20 February 2016**.

Table I1 – Transitional Requirements for Existing Structures

Transition period required for existing structures to achieve the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (EM635)			
Compliance with Criteria	**High**	**Significant**	**Low**
>90% and a history of good compliance performance in last 5 years	No transition required	No transition required	No transitional conditions apply. Review consequence assessment every 7 years.
>70% – ≤90%	Within 7 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 10 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	No transitional conditions apply. Review consequence assessment every 7 years.
>50 – ≤70%	Within 5 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 7 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Review consequence assessment every 7 years.
≤50%	Within 5 years of as per compliance requirements (e.g. TEP timing)	Within 5 years or as per compliance requirements (e.g. TEP timing)	Review consequence assessment every 5 years.

Schedule J: Watercourse Diversions	
Condition number	**Condition**
J1	**Watercourse diversions** Watercourse diversions must be designed, constructed and maintained in accordance with the associated Water Licence/s.

Definitions

Key terms and/or phrases used in this document are defined in this section. Applicants should note that where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning as defined in the Macquarie Dictionary.

'80th percentile' is not more than one fifth, of the measured values are to exceed the stated release limit for the limit period. For example, no more than eight (8) for any ten (10) consecutive samples for the long term period.

'the Act' means the Environmental Protection Act 1994.

'administering authority' is the agency that administers the environmental authority provisions under the *Environmental Protection Act 1994*'.

'affected person' is someone whose drinking water can potentially be impacted as a result of discharges from a dam or their life or property can be put at risk due to dwellings or workplaces being in the path of a dam break flood.

'airblast overpressure' means energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dBL).

'annual exceedance probability' or **AEP** the probability that at least one event in excess of a particular magnitude will occur in any given year.

'annual inspection report' means an assessment prepared by a suitably qualified and experienced person containing details of the assessment against the most recent consequence assessment report and design plan (or system design plan);

a) against recommendations contained in previous annual inspections reports;
b) against recognised dam safety deficiency indicators;
c) for changes in circumstances potentially leading to a change in consequence category;
d) for conformance with the conditions of this authority;
e) for conformance with the 'as constructed' drawings;
f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after **31 May** each year but prior to **1 November** of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the dam (or network of linked containment systems); and
g) for evidence of conformance with the current operational plan.

'appropriately qualified person' means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

'assessed or **assessment'** by a suitably qualified and experienced person in relation to a consequence assessment of a dam or regulated structure, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in the declaration, all of the following aspects are addressed and are sufficient to allow an independent audit of the assessment:

a) exactly what has been assessed and the precise nature of that determination;
b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;
c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

'associated works' in relation to a dam or regulated structure, means:

a) operations of any kind and all things constructed, erected or installed for that dam; and
b) any land used for those operations.

'authority' means an environmental authority or a development approval.

'background' with reference to the water schedule means the average of samples taken prior to the commencement of mining from the same waterway that the current sample has been taken.

'blasting' means the use of explosive materials to fracture:

a) rock, coal and other minerals for later recovery; or
b) structural components or other items to facilitate removal from a site or for reuse.

'certification' means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by the most recent version of the 'Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)' or its successor, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).

'certification, **certifying** or **certified'** have a corresponding meaning as 'certification'.

'chemical' means:

a) an agricultural chemical product or veterinary chemical product within the meaning of the Agricultural and '*Veterinary Chemicals Code Act 1994'* (Commonwealth); or
b) a dangerous good under the Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council; or
c) a lead hazardous substance within the meaning of the '*Workplace Health and Safety Regulation 1997*'; or
d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth; or
e) any substance used as, or intended for use as:
    i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematicide, miticide, fumigant or related product, or
    ii) a surface active agent, including, for example, soap or related detergent, or
    iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or
    iv) a fertiliser for agricultural, horticultural or garden use; or
    v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or
    vi) manufacture of plastic or synthetic rubber.

'commercial place' means a workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees' accommodation or public roads.

'consequence' in relation to a structure as defined, means the potential for environmental harm resulting from the collapse or failure of the structure to perform its primary purpose of containing, diverting or controlling flowable substances.

'consequence category' means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the most recent version of the 'Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)' or its successor.

'construction or constructed' in relation to a regulated structure includes building a new regulated structure and lifting or otherwise modifying an existing regulated structure, but does not include investigations and testing necessary for the purpose of preparing a design plan.

'**CSG water**' means underground water brought to the surface of the earth or moved underground in connection with exploring for or producing coal seam gas. **'daily peak design capacity'** for sewage treatment works, has the meaning in Schedule 2, section 63(4) of the *Environmental Protection Regulation 2019* as the higher equivalent person (EP) for the works calculated using each of the formulae found in the definition for EP.

'dam' means a land-based structure or a void that contains, diverts or controls flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works.

'dam crest volume' means the volume of material (liquids and/or solids) that could be within the walls of a dam at any time when the upper level of that material is at the crest level of that dam. That is, the instantaneous maximum volume within the walls, without regard to flows entering or leaving (e.g. via spillway).

'design plan' is a document setting out how all identified consequence scenarios are addressed in the planned design and operation of a regulated structure.

'design storage allowance' or '**DSA'** means an available volume, estimated in accordance with the most recent version of the 'Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)' or its successor published by the administering authority, that must be provided in a dam as at **1 November** each year in order to prevent a discharge from that dam to an annual exceedance probability (AEP) specified in that manual.

'designer' for the purposes of a regulated structure, means the certifier of the design plan for the regulated dam.

Disturbance of land includes:

a) compacting, removing, covering, exposing or stockpiling of earth;
b) removal or destruction of vegetation or topsoil or both to an extent where the land has been made susceptible to erosion;
c) carrying out mining within a watercourse, waterway, wetland or lake;
d) the submersion of areas by tailings or hazardous contaminant storage and dam/structure walls;
e) temporary infrastructure, including any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after the mining activity has ceased; or
f) releasing of contaminants into the soil or underlying geological strata.

However, the following areas are not included when calculating areas of 'disturbance':

a) areas off lease (e.g. roads or tracks which provide access to the mining lease);
b) areas previously disturbed which have achieved the rehabilitation outcomes;
c) by agreement with the administering authority, areas previously disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);
d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc.) which is to be left by agreement with the landowner; or
e) disturbance that pre-existed the grant of the tenure.

'document' has the meaning in the *Acts Interpretation Act 1954* and means:

a) any paper or other material on which there is writing; and

b) any paper or other material on which there are marks; and

c) figures, symbols or perforations having a meaning for a person qualified to interpret them; and

d) any disc, tape or other article or any material from which sounds, images, writings or messages are capable of being produced or reproduced (with or without the aid of another article or device).

'EC' means electrical conductivity.

'emergency action plan' means documentation forming part of the operational plan held by the holder or a nominated responsible officer, that identifies emergency conditions and that sets out procedures and actions that will be followed and taken by the dam owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to affected persons and the implementation of protection measures. The plan must require dam owners to annually review and update contact information where required.

'enhanced release' means a release of mine affected water from release points RP4, RP5, RP6, RP7 or RP10 in accordance with conditions **C35** to **C48**.

'environmental authority' means this environmental authority.

'environmental harm' has the meaning in section 14 of the *Environmental Protection Act 1994* and means any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.

'environmental nuisance' has the meaning in section 15 of the *Environmental Protection Act 1994* and means unreasonable interference or likely interference with an environmental value caused by –

a) aerosols, fumes, light, noise, odour, particles or smoke; or

b) an unhealthy, offensive or unsightly condition because of contamination; or

c) another way prescribed by regulation.

'environmental offset' has the meaning of section 7 of the *Environmental Offsets Act 2014*.

'equilibrium': means a state where 'balance' is achieved despite changing variables.

'equivalent person or EP' has the meaning under section 3 of the Planning Guidelines For Water Supply and Sewerage, 2005, published by the Queensland Government. It is calculated in accordance with Schedule 2, Section 63(4) of the *Environmental Protection Regulation 2019* where:

a) EP = V/200 where V is the volume, in litres, of the average dry weather flow of sewage that can be treated at the works in a day; or

b) EP = M/2.5 where M mis the mass, in grams, of phosphorous in the influent that the works are designed to treat as the inlet load in a day.

'existing authority' has the meaning in section 94 of the *Environmental Offsets Act 2014*.

'existing structure' means a structure that was in existence prior to (insert date of EA the adoption of this schedule of conditions under the authority) and meets any or both of the following, a structure:

a) with a design that is in accordance with version 5.0 of Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933) and that is considerably in progress; and

b) that is under considerable construction or that is constructed.

'flowable substance' means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids, fluids or solids, or a mixture that includes water and any other liquids, fluids or solids either in solution or suspension.

'GDA' means Geocentric Datum of Australia.

'holder', for a mining tenement, means a holder of the tenement under the *Mineral Resources Act 1989*, and the holder of the associated environmental authority under the *Environmental Protection Act 1994*.

'hydraulic performance' means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the most recent version of the 'Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)' or its successor.

'infrastructure' means water storage dams, levees, roads and tracks, buildings and other structures built for the purpose of the mining activity.

'$L_{A1, Adj,15min}$' means the A-weighted sound pressure level, adjusted for tonal character, that is exceeded for 1% of any 15 minute period.

'L_{A90}' means the A-weighted sound pressure level that has been exceeded for 90% of the sample period.

'$L_{Aeq, Adj\ 15min}$' means the A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within any 15 minute period has the same square sound pressure as a sound level that varies with time.

'land' in the 'land schedule' of this document means land excluding waters and the atmosphere, that is, the term has a different meaning from the term as defined in the *Environmental Protection Act 1994*. For the purposes of the *Acts Interpretation Act 1954*, it is expressly noted that the term 'land' in this environmental authority relates to physical land and not to interests in land.

'land use' means the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

'leachate' means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of at the operational land which contains soluble, suspended or miscible contaminants likely to have been derived from the said material.

'levee' means an embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting

from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of water or flowable substances at any other times.

'licensed place' means the mining activities carried out at the mining tenements detailed in page 1 of this environmental authority.

'low consequence dam' means any dam that is not a high or significant hazard category as assessed using the most recent version of the 'Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)' or its successor.

'm' means metres.

'mandatory reporting level' or '**MRL'** means a warning and reporting level determined in accordance with the criteria in the most recent version of the 'Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)' or its successor published by the administering authority.

'maximum extent of impact' means the total, cumulative, residual extent and duration of impact to a prescribed environmental matter that will occur over a project's life after all reasonable avoidance and reasonable on-site mitigation measures have been, or will be, undertaken.

'measures' includes any measures to prevent or minimise environmental impacts of the mining activity such as bunds, silt fences, diversion drains, capping, and containment systems.

'mining activity' or **'mining activities'** means exploration, construction, mining operation, rehabilitation and monitoring activities on the mining tenures stated in Environmentally Relevant Activity and location details of this environmental authority.

'mine affected water':

a) means the following types of water:
   i) pit water, tailings dam water, processing plant water;
   ii) water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the *Environmental Protection Regulation 2019* if it had not formed part of the mining activity;
   iii) rainfall runoff which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated, excluding rainfall runoff discharging through release points associated with erosion and sediment control structures that have been installed in accordance with the standards and requirements of an Erosion and Sediment Control Plan to manage such runoff, provided that this water has not been mixed with pit water, tailings dam water, processing plant water or workshop water;
   iv) groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated;
   v) groundwater from the mine's dewatering activities;
   vi) a mix of mine affected water (under any of paragraphs i) – v) and other water; and
   vii) CSG water extracted as part of the gas drainage pilot program authorised by condition **A19**.

b) does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by mining activities that have not yet been completely rehabilitated, has only been in contact with:
   i) land that has been rehabilitated to a stable landform and either capped or revegetated in accordance with the acceptance criteria set out in the environmental authority but only still awaiting maintenance and monitoring of the rehabilitation over a specified period of time to demonstrate rehabilitation success; or
   ii) land that has partially been rehabilitated and monitoring demonstrates the relevant part of the landform with which the water has been in contact does not cause environmental harm to waters or groundwater, for example:
      1) areas that have been capped and have monitoring data demonstrating hazardous material is adequately contained with the site;
      2) evidence provided through monitoring that the relevant surface water would have met the water quality parameters for mine affected water release limits in this environmental authority, if those parameters had been applicable to the surface water runoff, or
   iii) both.

'minimise' is to reduce to the smallest possible amount or degree.

'modification' or '**modifying'** (see definition of 'construction').

'natural flow' means the flow of water through waters caused by nature.

'non-polluting' means having no adverse impacts upon the receiving environment.

'notice of election' has the meaning in section 18(2) *Environmental Offsets Act 2014*.

'operational plan' includes:

a) normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA allowance); and
b) contingency and emergency action plans including operating procedures designed to avoid and/or minimise environmental impacts including threats to human life resulting from any overtopping or loss of structural integrity of the regulated structure.

'peak particle velocity' or **'ppv'** means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mm/s).

'prescribed environmental matters' has the meaning in section 10 of the *Environmental Offsets Act 2014*, limited to Matters of State Environmental Significance listed in schedule 2 of the *Environmental Offsets Regulation 2014*.

'protected area' means – a protected area under the *Nature Conservation Act 1992*, or

a) a marine park under the *Marine Parks Act 1992*; or

b) a World Heritage Area.

'receiving environment' in relation to an activity that causes or may cause environmental harm, means the part of the environment to which the harm is, or may be, caused. The receiving environment includes (but is not limited to):

a) a watercourse;

b) groundwater; and

c) an area of land that is not specified in condition A3 and **Attachment 1: Authorised Disturbance Footprint (Lake Vermont Coal Mine)** and **Attachment 2: Authorised Disturbance Footprint (Meadowbrook Project)** of this environmental authority.

'receiving waters' means the waters into which this environmental authority authorises releases of mine affected water.

'regional ecosystem' has the meaning in the Methodology for Surveying and Mapping of Regional Ecosystems and Vegetation Communities in Queensland (Version 3.2 August 2012) and means a vegetation community in a bioregion that is consistently associated with a particular combination of geology, landform and soil. Regional ecosystems of Queensland were originally described in Sattler and Williams (1999). The Regional Ecosystem Description Database (Queensland Herbarium 2013) is maintained by Queensland Herbarium and contains the current descriptions of regional ecosystems.

'Register of Regulated Structures' includes:

a) date of entry in the register;
b) name of the dam, its purpose and intended/actual contents;
c) the consequence category of the dam as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635);
d) date, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam;

e) name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
f) for the regulated dam, other than in relation to any levees –
    i) the dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
    ii) coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area;
    iii) dam crest volume (megalitres);
    iv) spillway crest level (metres AHD);
    v) maximum operating levels (metres AHD);
    vi) storage rating table of stored volume versus level (metres AHD);
    vii) design storage allowance (megalitres) and associated level of the dam (metres AHD); and
    viii) mandatory reporting level (metres AHD).
g) the design plan title and reference relevant to the dam;
h) the date construction was certified as compliant with the design plan;
i) the name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;
j) details of the composition and construction of any liner;
k) the system for the detection of any leakage through the floor and sides of the dam;
l) dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;
m) dates when recommendations and actions arising from the annual inspection were provided to the administering authority; and
n) dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

'regulated dam' means any dam in the significant or high hazard category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635) published by the administering authority.

'regulated structure' includes land-based containment structures, levees, bunds and voids, but not a tank or container designed and constructed to an Australian Standard that deals with strength and structural integrity.

'rehabilitation' means the process of reshaping and revegetating land to restore it to a stable landform.

'release event' means a surface water discharge from mine affected water storages or contaminated areas on the licenced place.

'reporting limit' means the lowest concentration that ban be reliably measured with specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes, the reporting limit is selected as the lowest non-zero standard in the calibration curve. Results that fall below the reporting limit will be reported as "less than" the value of the reporting limit. The reporting limit is also referred to as the practical quantification limit or the limit of quantification. For polycyclic aromatic hydrocarbons, the reporting limit must be based on super-ultra trace methods and, depending on the specific polycyclic aromatic hydrocarbon, will range between 0.005ug/L–0.02µg/L.

'representative' means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

'revegetation' is the re-establishment of vegetation of a species and density of cover similar to surrounding undisturbed areas or the landform that existed before mining activities on soil surfaces associated with the construction or rehabilitation of a watercourse diversion.

'RL' means reduced level, relative to mean sea level as distinct from depths to water.

'self-sustaining' means not requiring on-going intervention and maintenance to maintain functional riverine processes and characteristics.

'sensitive place' means:

a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
b) a motel, hotel or hostel; or
c) an educational institution; or
d) a medical centre or hospital; or
e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area; or
f) a public park or gardens.

Note: The definition of 'sensitive place' and 'commercial place' is based on Schedule 1 of EPP Noise. That is, a sensitive place is inside or outside on a dwelling, library and educational institution, childcare or kindergarten, school or playground, hospital, surgery or other medical institution, commercial and retail activity, protected area or an area identified under a conservation plan under Nature Conservation Act 1992 as a critical habitat or an area of major interest, marine pack under Marine Parks Act 2004, park or garden that Is outside of the mining lease and open to the public for the use other than for sport or organised entertainment. A commercial place is inside or outside a commercial or retail activity.
A mining camp (i.e., accommodation and ancillary facilities for mine employees or contractors or both, associated with the mine the subject of the environmental authority) is not a sensitive place for that mine or mining project, whether or not the mining camp is located within a mining tenement that is part of the mining project the subject of the environmental authority. For example, the mining camp might be located on neighbouring land owned or leased by the same company as one of the holders of the environmental authority for the mining project, or a related company. Accommodation for mine employees or contractors is a sensitive place if the land is held by a mining company or related company, and if occupation is restricted to the employees, contractors and their families for the particular mine or mines which are held by the same company or related company.
For example, a township (occupied by the mine employees, contractors and their families for multiple mines that are held by different companies) would be a sensitive place, even if part or all of the township is constructed on land owned by one or more of the companies.

'significant residual impact' has the meaning in section 8 of the *Environmental Offsets Act 2014*.

'spillway' means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges from the dam, normally under flood conditions or in anticipation of flood conditions.

'structure' means dam or levee.

'suitably qualified and experienced person' in relation to regulated structures means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Engineers Act 2002*, and has demonstrated competency and relevant experience:

a) For regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design.
b) For regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments.

Note: It is permissible that a suitably qualified and experienced person obtain subsidiary certification from an RPEQ who has demonstrated competence and relevant experience in either geomechanics, hydraulic design or engineering hydrology.

'suitably qualified and experienced person' in relation to watercourse diversions means a person who is a RPEQ under the provisions of the *Professional Engineers Act 2002*, who has an **appropriate level of expertise** in the structures, geomechanics, hydrology, hydraulics and environmental impact of watercourse diversions.

An **appropriate level of expertise** includes:

a) demonstrable competency, experience and expertise in:
    i) investigation, design or construction of watercourses diversions;
    ii) operation and maintenance of watercourse diversions;
    iii) geomechanics with particular emphasis on channel equilibrium, geology and geochemistry;
    iv) hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;
    v) hydraulics with particular reference to sediment transport and deposition and erosion control;
    vi) hydrogeology with particular reference to seepage and groundwater;
    vii) solute transport processes and monitoring thereof; or
b) sufficient knowledge and experience to certify that where the **suitably qualified and experienced person** has relied on advice and information provided by other **persons with relevant expertise**:
    i) they consider it reasonable to rely on that advice and information; and
    ii) the expert providing the advice and information has knowledge, competency, suitable experience and demonstrated expertise in the matters related to watercourse diversions.

Persons with relevant expertise include:

a) Geomorphologist: person who has demonstrated competency and relevant experience in stream geomorphology and watercourse diversions;
b) Geotechnical Expert: person who has demonstrated competency and relevant experience in geotechnical assessment of soil characteristics suitable for watercourse diversions;
c) Vegetation Expert: person who has demonstrated competency and relevant experience in the identification, role and function of vegetation with watercourses and adjoining floodplains, and has demonstrated competency and relevant experience in revegetation of watercourse diversions and adjoining floodplains;
d) Groundwater Expert: person who has demonstrated competency and relevant experience in groundwater systems;

e) Surface Water Expert: person who has demonstrated competency and relevant experience in hydrology;
f) Engineer: person who is a RPEQ under the provisions of the *Professional Persons Act 2002* or has similar qualifications under a respected professional registration association, and has demonstrated competency and relevant experience in design and construction of watercourse diversions;
g) Soils Expert: person who has demonstrated competency and relevant experience in soil classification including the physical, chemical and hydrologic analysis of soil.

'system design plan' means a plan that manages an integrated containment system that shares the required DSA and/or ESS volume across the integrated containment system.

'µS/cm' means micro siemens per centimetre.

'void' means any constructed, open excavation in the ground.

'waste' is defined under section 8AA of the *Waste Reduction and Recycling Act 2011*.

'water' is defined under Schedule 4 of the *Water Act 2000.*

'watercourse' has the same meaning given in section 5 of the *Water Act 2000*.

'**watercourse diversion**' is a man-made structure that diverts or interferes with the course of flow within a watercourse, but that does not impound water.

'water year' means the **twelve (12) month** period from **1 July** to **30 June**.

'waters' includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined natural or artificial watercourses, bed and banks of any waters, dams, non-tidal or tidal waters (including the sea), storm water channel, storm water drain, and groundwater and any part thereof.

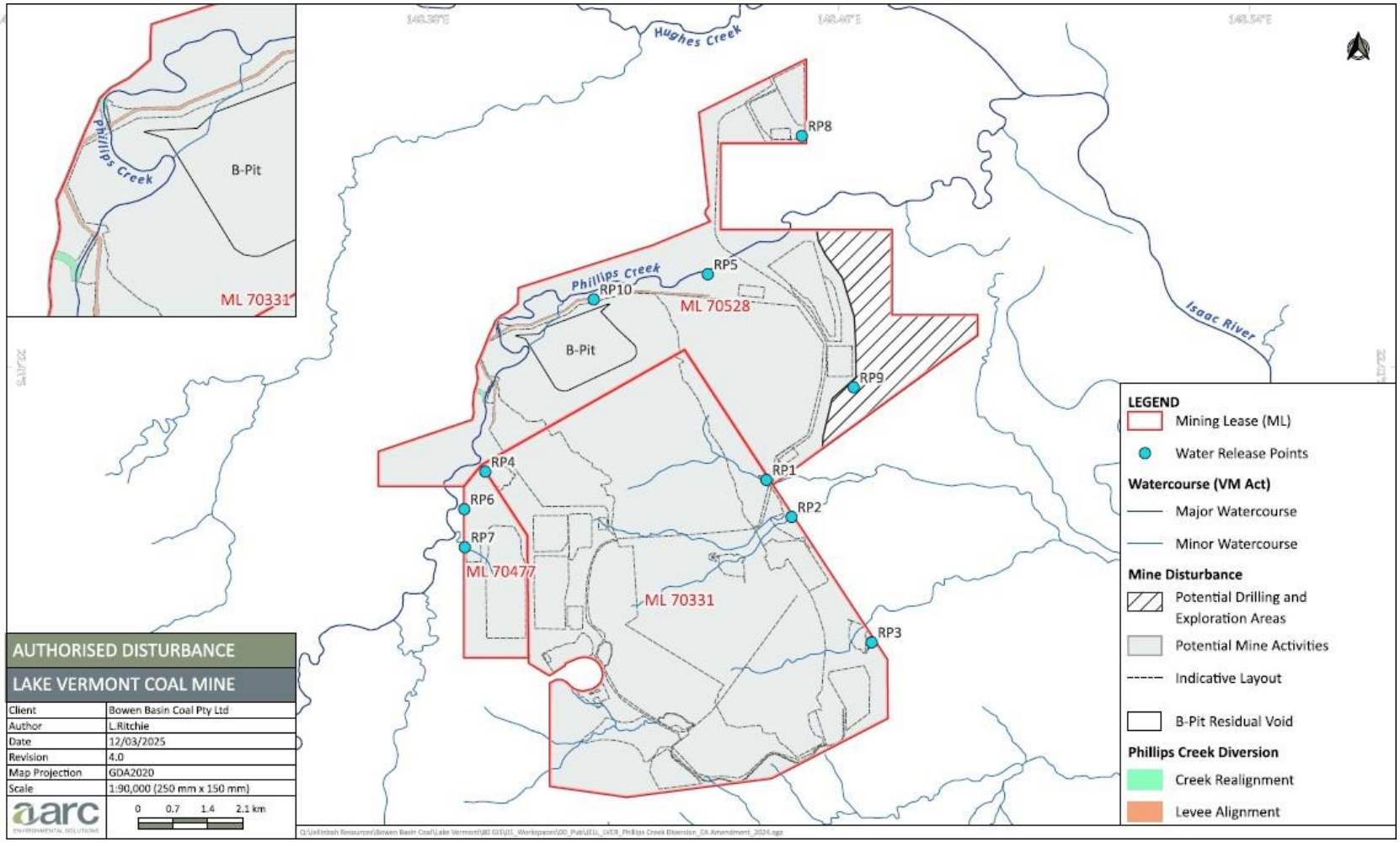
'**WaTERS'** means the Water Tracking and Electronic Reporting System (WaTERS) used for tracking of regulated activities in Queensland that involve water releases to the environment.

'water quality' means the chemical, physical and biological condition of water.

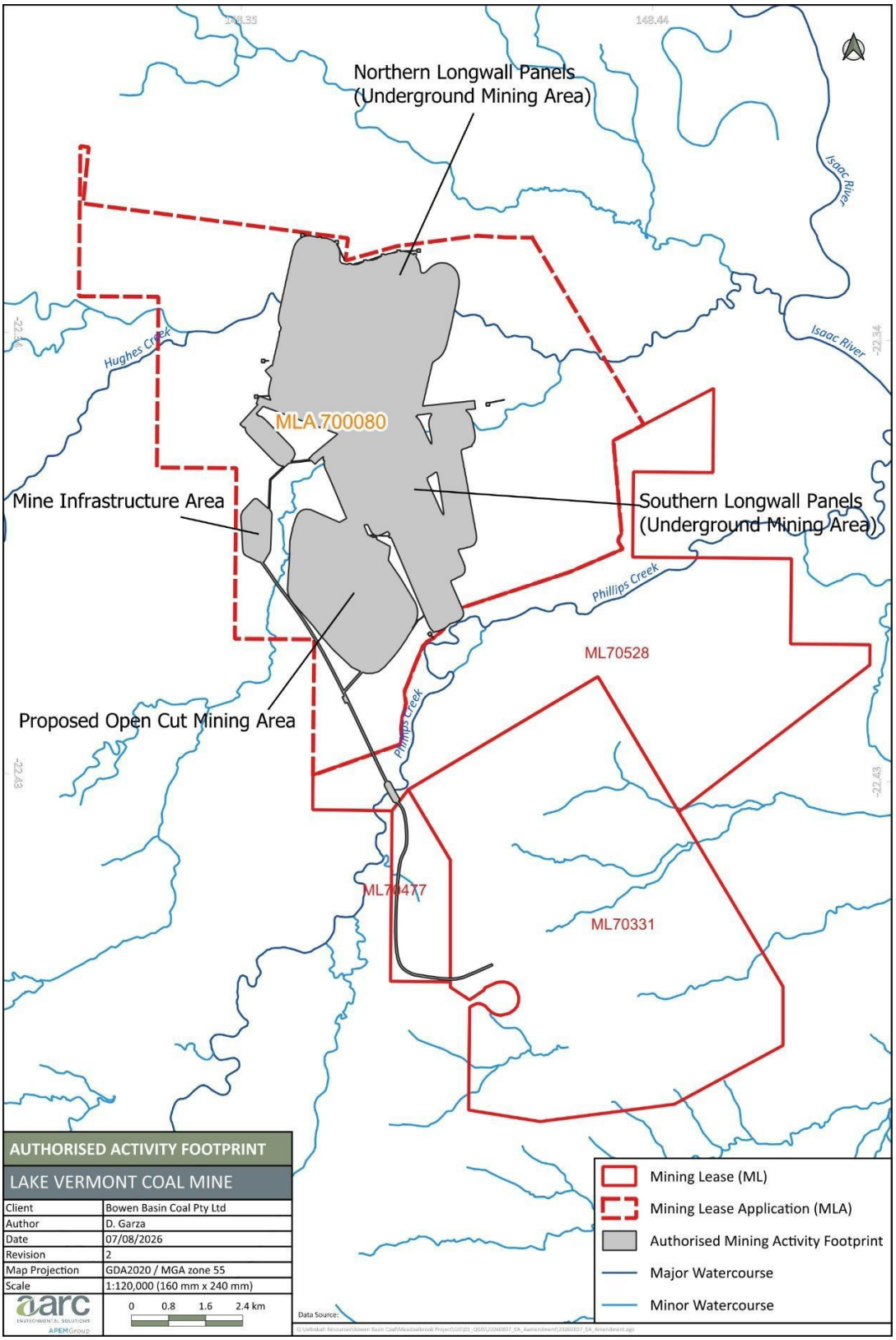
'wet season' means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from **1 November** in one year to **31 May** in the following year inclusive.

END OF DEFINITIONS

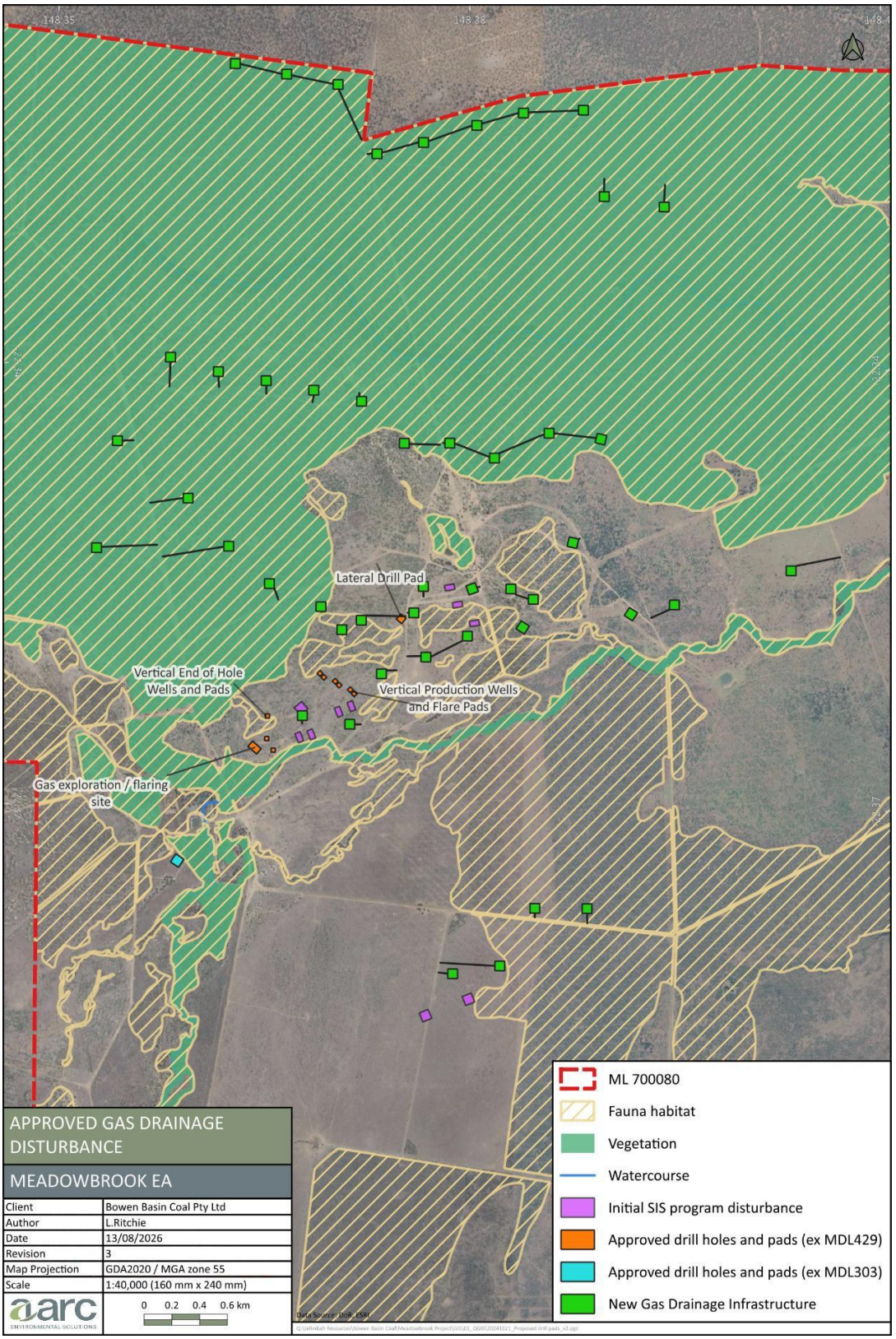
Attachment 1: Authorised Disturbance Footprint (Lake Vermont Coal Mine)



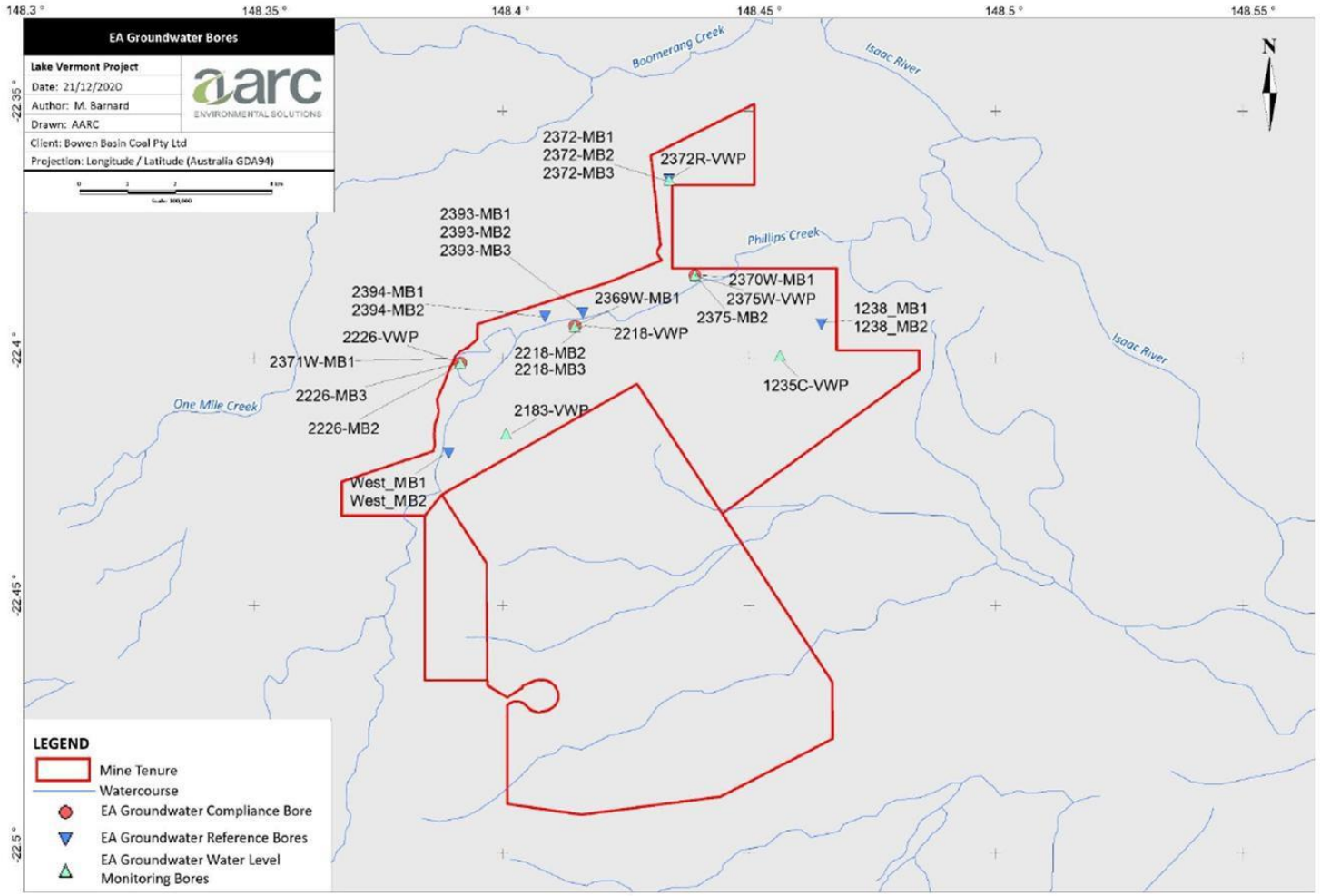
Attachment 2: Authorised Disturbance Footprint (Meadowbrook Project)



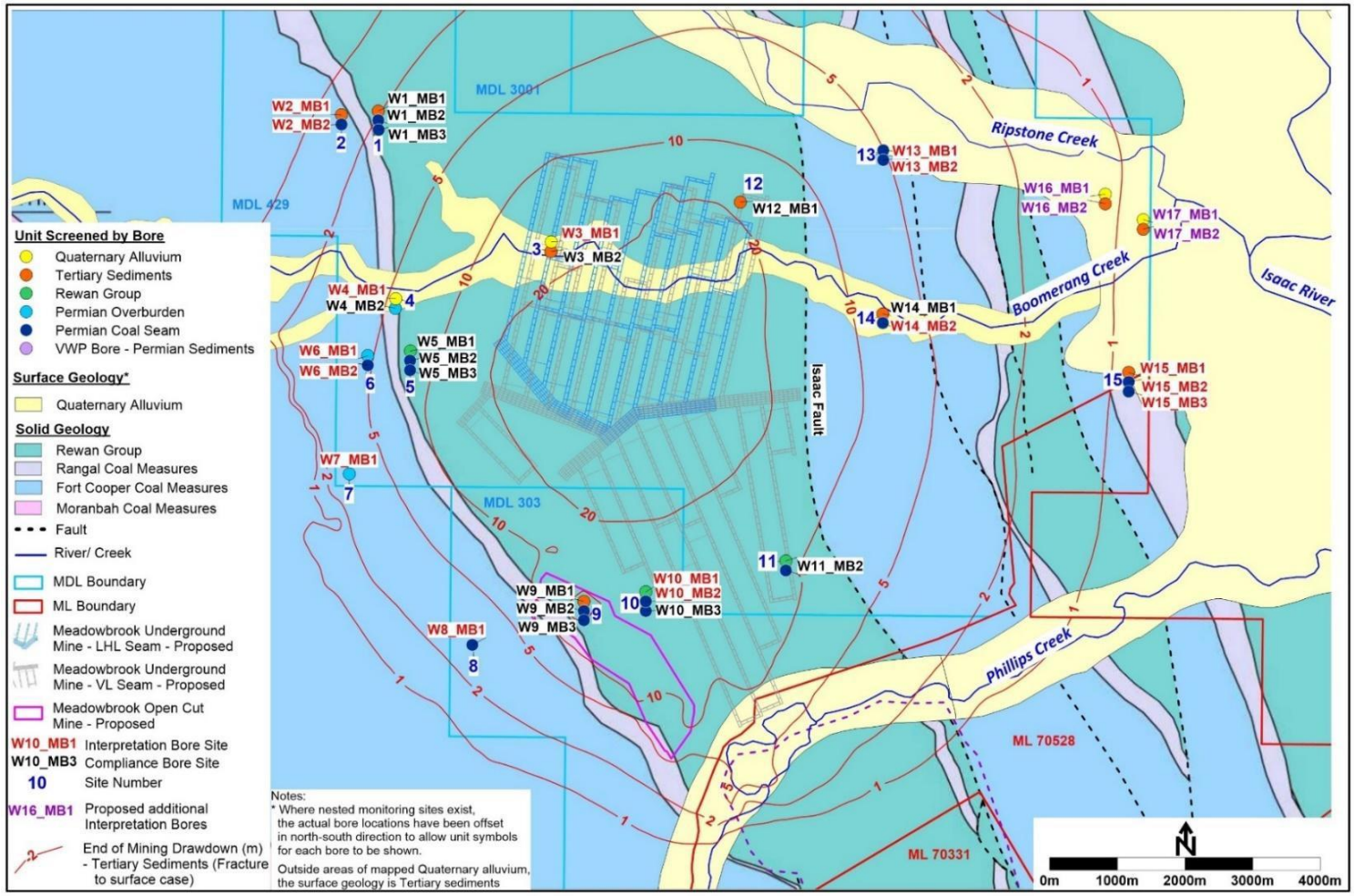
Attachment 3: Approved gas drainage disturbance



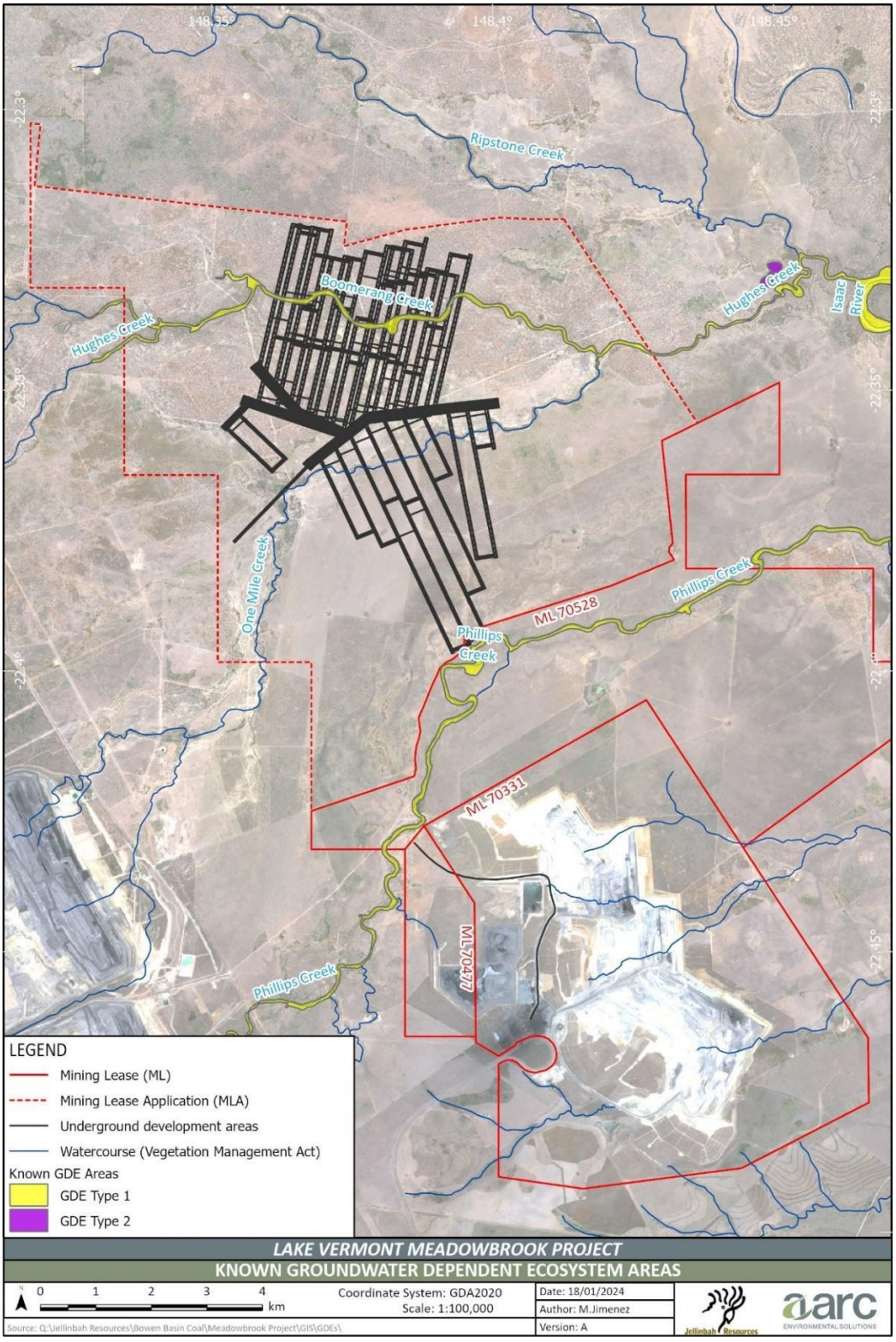
Attachment 4: Groundwater Bore Monitoring Locations (Lake Vermont Coal Mine)



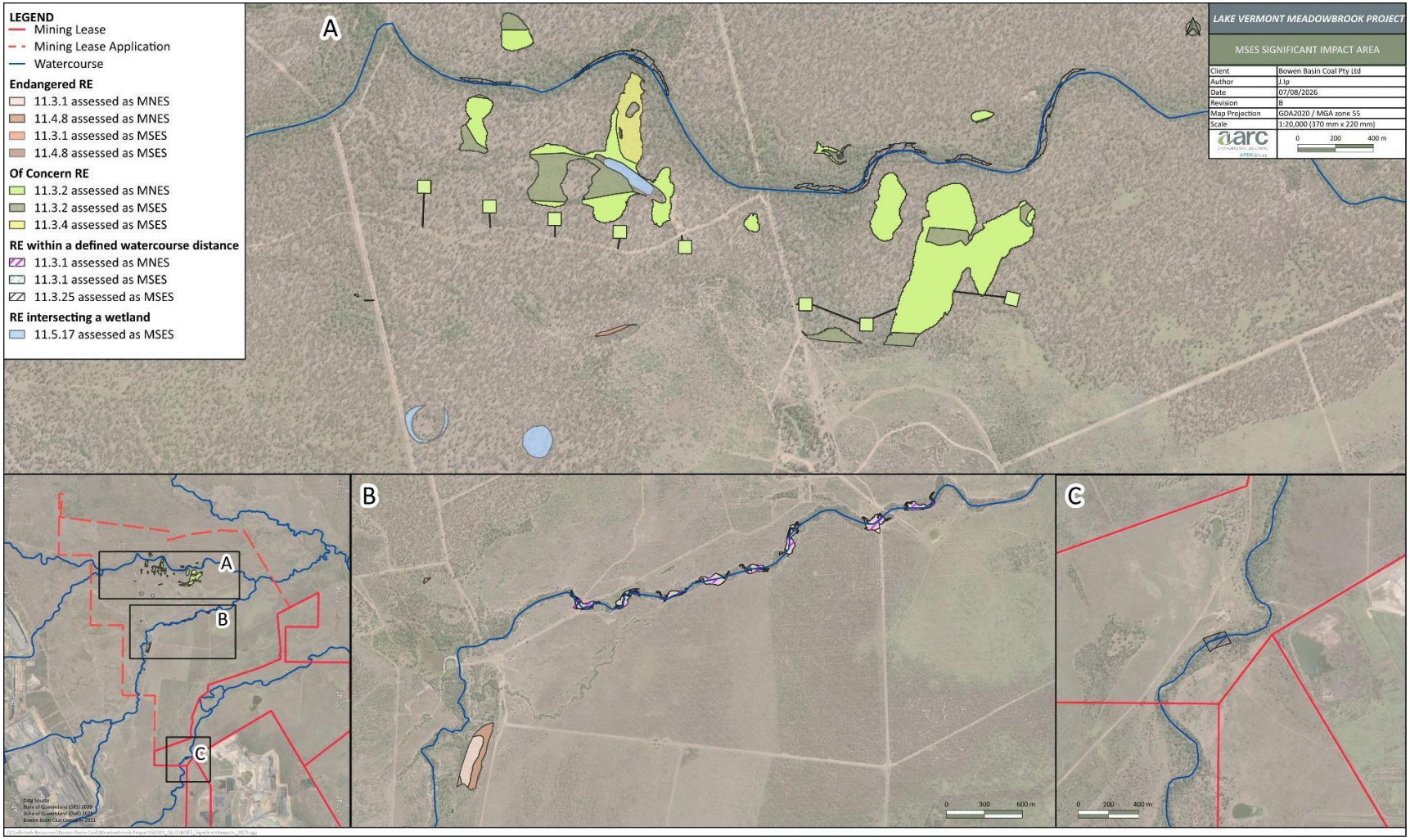
Attachment 5: Groundwater Bore Monitoring Locations (Meadowbrook Project)



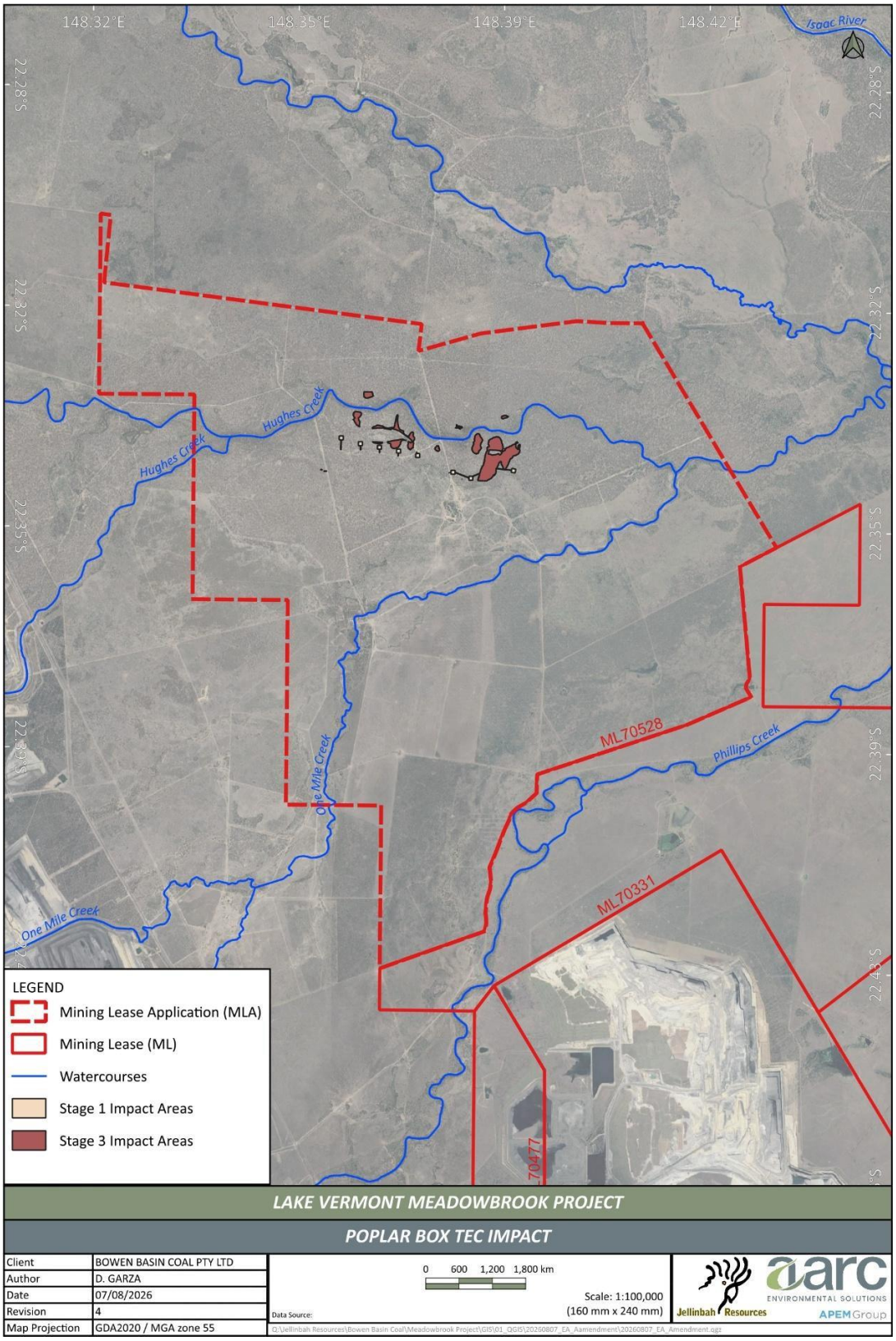
Attachment 6: Identified GDE locations (Meadowbrook)



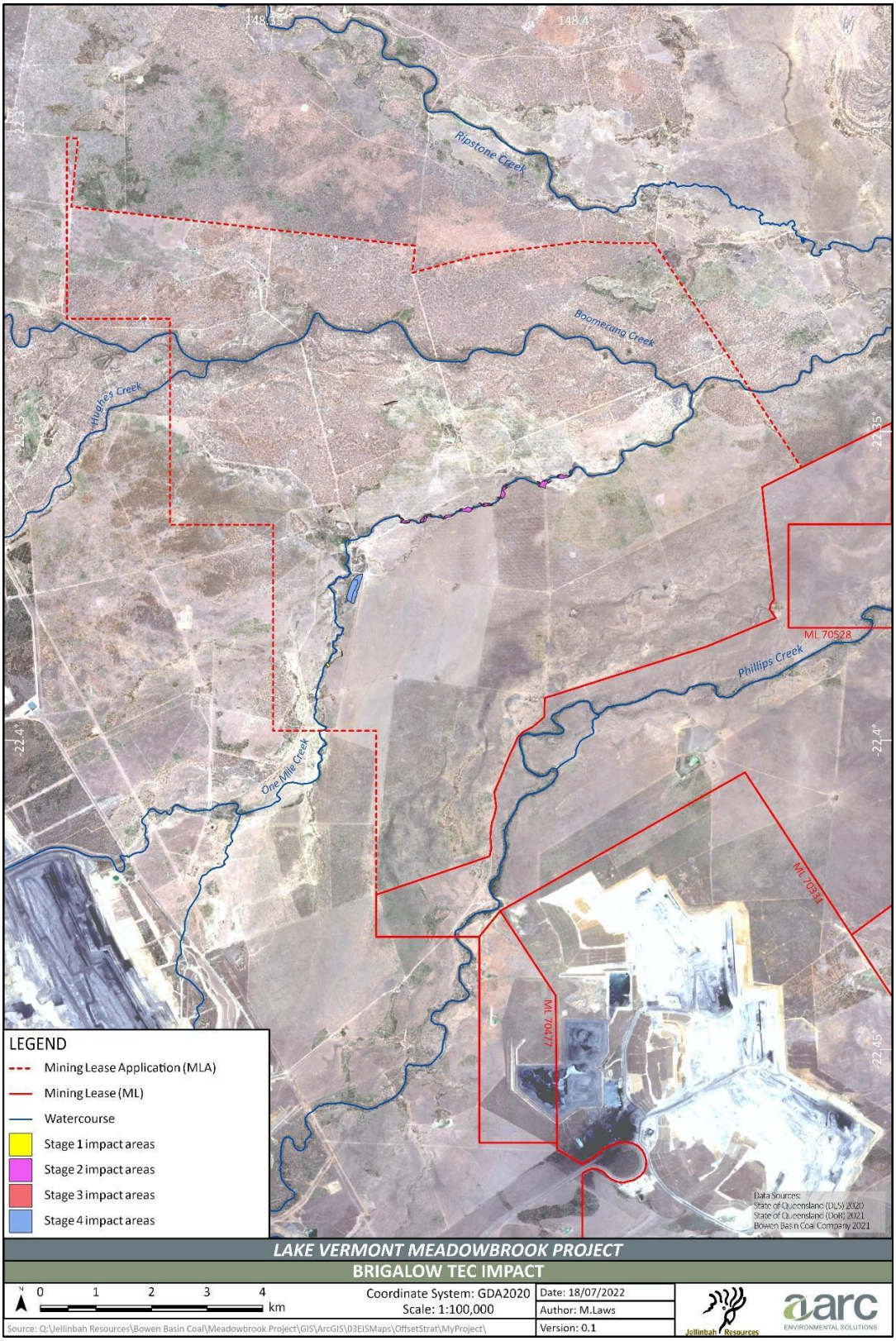
Attachment 7: MSES authorised significant impact areas



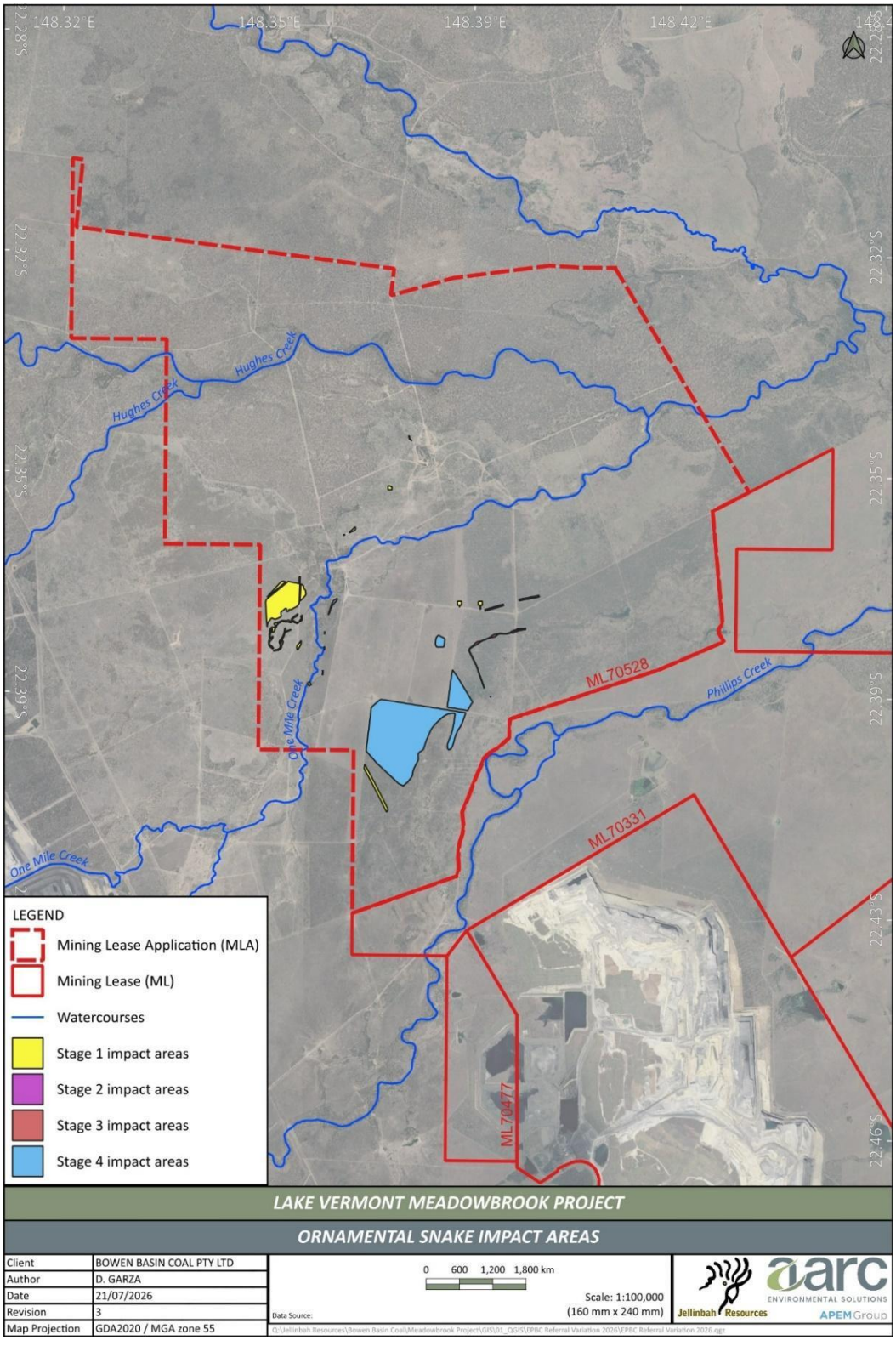
Attachment 8: Poplar Box TEC authorised significant impact areas



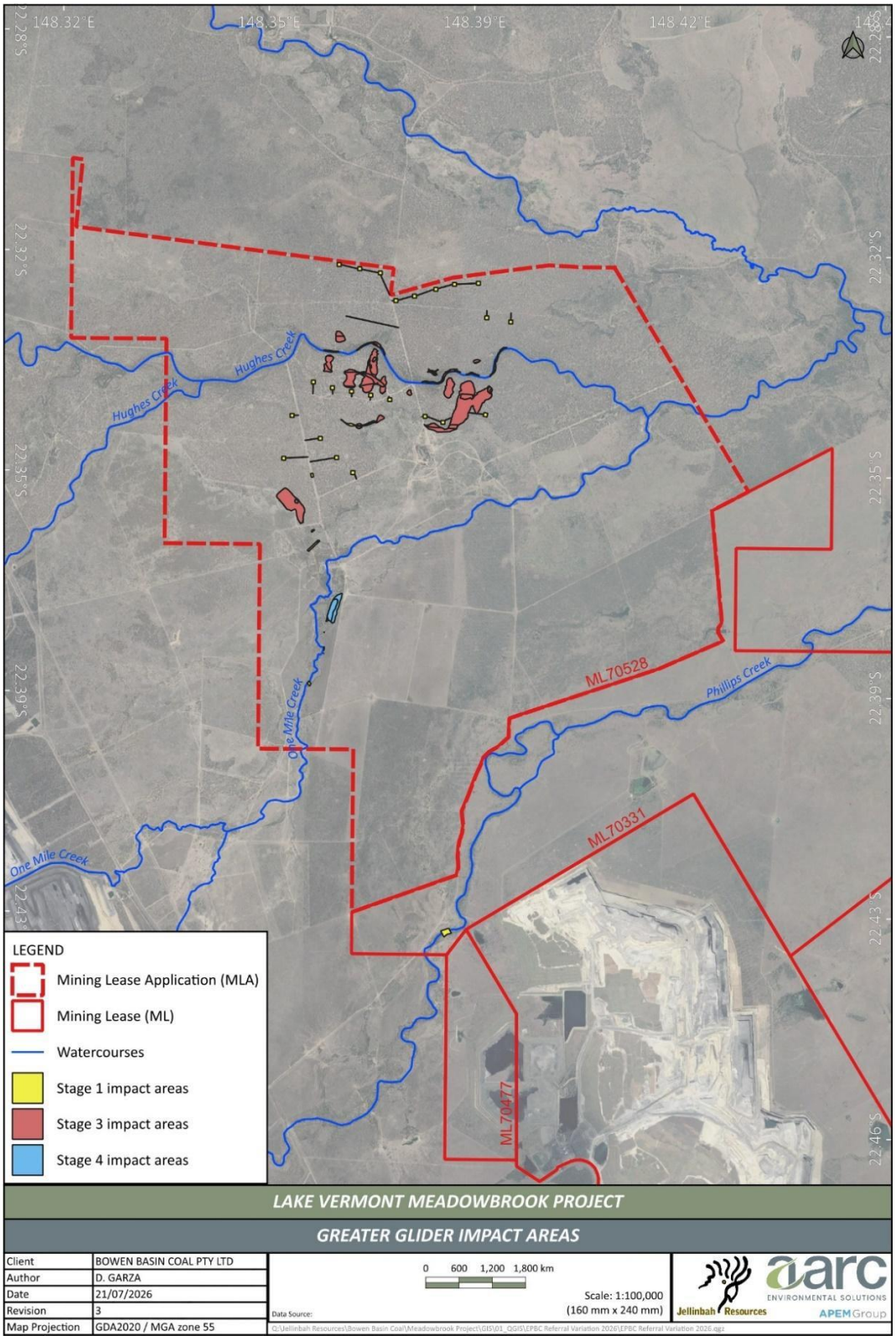
Attachment 9: Brigalow TEC authorised significant impact areas



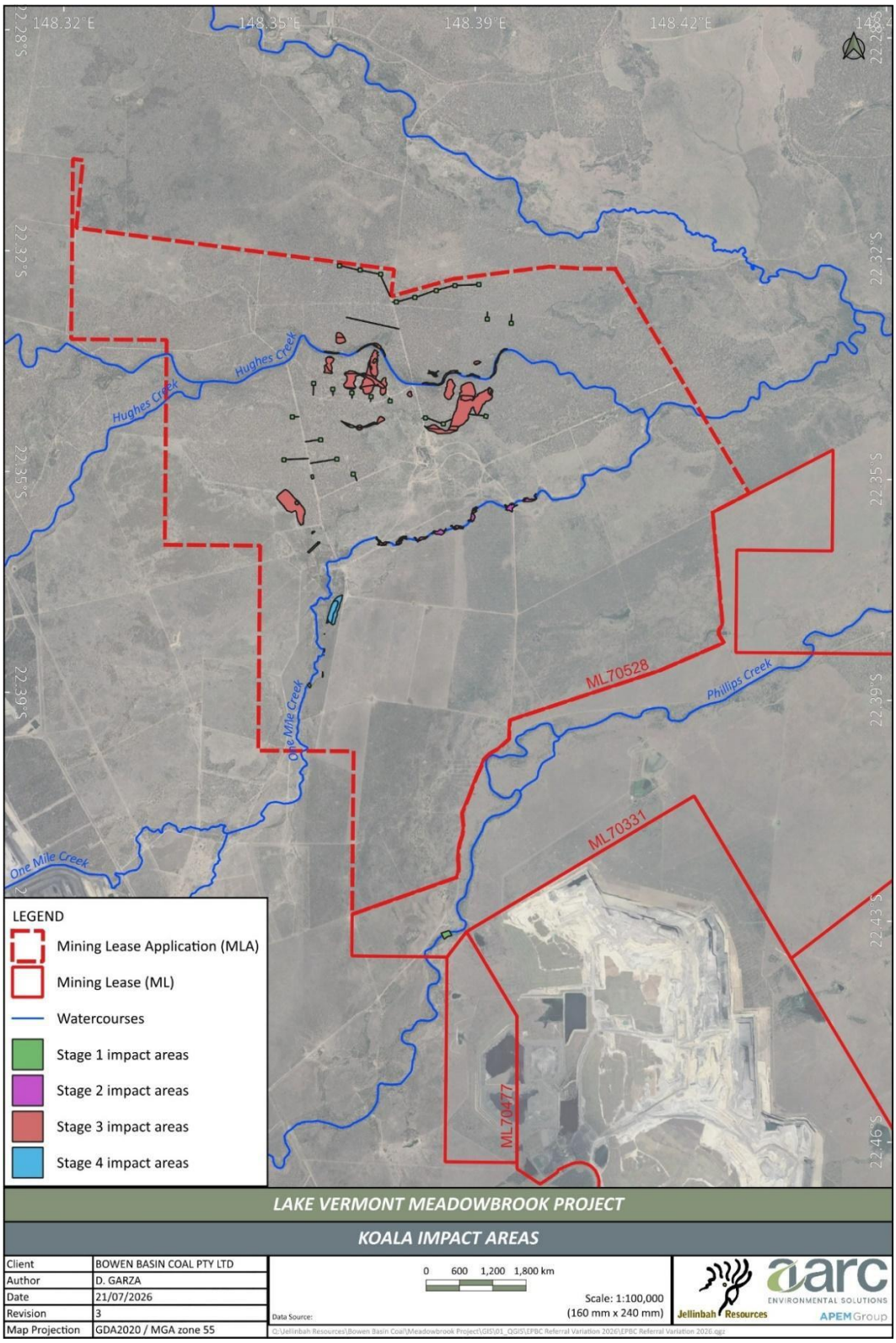
Attachment 10: Ornamental Snake authorised significant impact areas



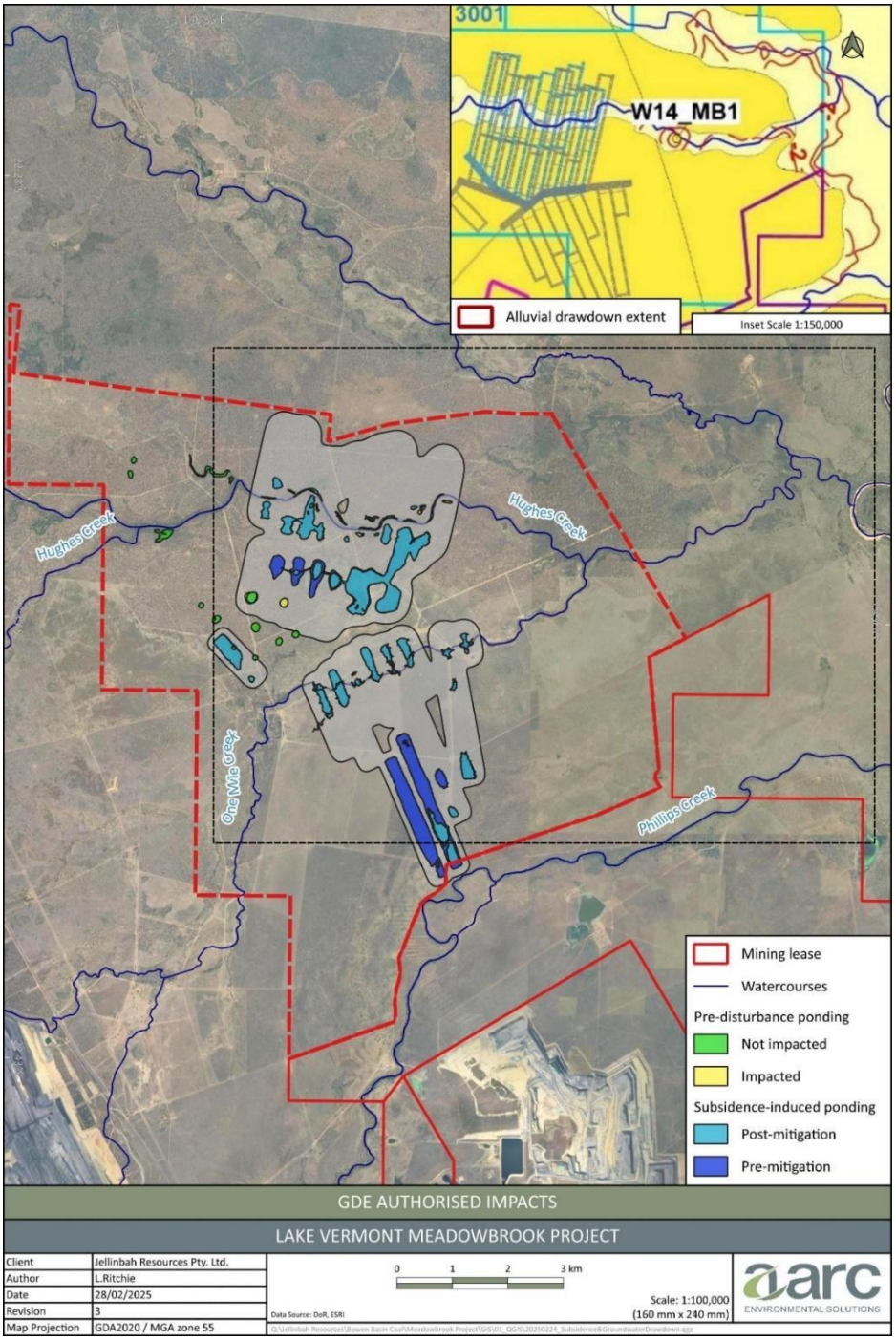
Attachment 11: Greater Glider authorised significant impact areas



Attachment 12: Koala authorised significant impact areas



Attachment 13: Authorised areas of residual subsidence ponding and authorised impacts to GDEs



Note: The inset to Attachment 13: Authorised areas of residual subsidence ponding and authorised impacts to GDE's illustrates the predicted extent of groundwater drawdown within the alluvial aquifer (as relevant to Meadowbrook Project GDEs).

Attachment 14: Approximate location of gas drainage pilot program

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